

Control Your Video

VIDEO WALLS VIDEO PROCESSORS VIDEO MATRIX SWITCHES EXTENDERS SPLITTERS WIRELESS CABLES & ACCESSORIES

9 Display Videowall Processor with Rotation





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Product Application & Market Sectors



Corporate



House Of Worship



Military



Residential



Education



Industrial



Medical



Aviation



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SECTION I: GETTING STARTED

1.1 IMPORTANT SAFEGUARDS

Please read all instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
- Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
- Repair or attempted repair by anyone not authorized by us.
- Any damage of the product due to shipment.
- Removal or installation of the product.
- Causes external to the product, such as electric power fluctuation or failure.
- Use of supplies or parts not meeting our specifications.
- Normal wear and tear.
- Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

I.2 SAFETY INSTRUCTIONS

The **DVI-PROWALL-9X** Display Videowall Processor has been tested for conformance to safety regulations and requirements, and has been certified for international use. However; like all electronic equipments, the DVI-PROWALL-9X should be used with care and precaution. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- △ Do not dismantle the housing or modify the module.
- △ Dismantling the housing or modifying the module may result in electrical shock or burn.
- A Refer all servicing to qualified service personnel.
- ▲ Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards.
- ▲ Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. Should an object or liquid falls or spills on to the housing, unplug the module immediately.
- A Have the module checked by a qualified service engineer before using it again.
- △ Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



I.3 REGULATORY NOTICES FEDERAL COMMUNICATIONS COMMISSION (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications made to this equipment may void the users authority to operate this equipment.

Warning Symbols





Description

ONLY USE THE PROVIDED POWER CABLE OR POWER ADAPTER SUPPLIED. DO NOT TAMPER WITH THE ELECTRICAL PARTS. THIS MAY RESULT IN ELECTRICAL SHOCK OR BURN.

DO NOT TAMPER WITH THE UNIT. DOING SO WILL VOID THE WARRANTY AND CONTINUED USE OF THE PRODUCT.

THE VIDEO BOARDS ARE VERY SENSITIVE TO STATIC. PLEASE ENSURE IF RACK MOUNTED OR INSTALLED ON A SURFACE, IT SHOULD BE IN A GROUNDED ENVIRONMENT.





2. INTRODUCTION

The DVI-PROWALL-9X/12x 9-Display 4K Video Wall Processor was developed to meet and accommodate the upcoming video resolution 4K@30 (3840x2160).

This unit can support up to 12 DVI/HDMI outputs to expand the spectrum of video wall applications, because of its modular add-on card design concept, users can therefore modify the number of output ports based on different scenarios. Utilizing the same chassis for 9 and 12 video processing the bandwidth of the video can be controlled by any PC/laptop either via Ethernet or RS232 control. These control modules and control software has been revised for quick and easy setup within any environment.

The DVI-PROWALL-9X allows you to input 2 DVI/HDMI – the first HDMI port supports up to 4k, the second HDMI port supports up to 1080p and the VGA/Component port supports up to WUXGA (1920x1200).

FEATURES

- Up to 12 DVI outputs from 640x480 to 1920x1080, 1920x1200;
- Supports one of HDMI input resolution up to 4K2K, other inputs up to 1080p/WUXGA;
- Supports VGA and Component input format from 640x480 to 1920x1200, interfaced or progressive;
- PIP, side-by-side (PAP), full screen modes and adjustable size and position through software;
- Resize, position, flip, zoom output video;
- Each DVI output has and independent controllable display area;
- User-selectable output settings, up to Full HD 1080p, 1920x1200;
- Software control through RS-232 and Ethernet;
- PCIE-interface add-on card design;
- Perfectly as a video screen splitter, a video converter and a video switcher;
- HDCP compliant;
- Supports input rotation;
- 2.5 RU size.



2.1 PACKAGE CONTENTS

Before you start the installation of the converter, please check the package contents.

I	I x DVI-PROWALL-9X	
2	Installation Software	
3	2 x DVI to HDMI Adapter I x VGA to Component Breakout Cable	
4	AV Power Cord	
5	I x Right and Left Ear Rack Sets	
6	User's Manual	<image/> <image/> <image/> <image/> <image/> <image/> <image/> <image/>

If you require your DVI-PROWALL-9X to be upgraded to 12 ports. Please order the part# DVI-PROWALL-M3

Optional 3 Card Expansion Module with new easy Modular drawer insert design

197		71
		+-(



2.2 **BEFORE INSTALLATION**

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Do not place the product in high temperature (over 50°C), low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications supplied with the unit. If improper power supply is used the unit may malfunction and cause a fire.
- Do not twist or pull by force ends of the video cable. It can cause malfunction.

2.2.1 CABLE SPECIFICATIONS





To achieve best results with our DVI-PROWALL-9X we highly recommend a premium quality 26 or 24 AWG HDMI cable with the below specifications to maintain signal integrity and distances.

FEATURES:

- Length: 5m (16ft) to 15m (50ft)
- Bandwidth: 10.2 Gbps data transfer rate
- Supports Resolution: Up to 3840x2160 @ 24Hz and 4096x2160 @ 24Hz, 1080p @ 24Hz / 50/60Hz/3D
- Conductor gauge: 26 / 24 AWG
- Deep Color
- 3D Capable
- CEC
- Ethernet Channel
- Audio Return Channel
- Connector I: HDMI (Type A) Male
- Connector 2: HDMI (Type A) Male



^{3.} INSTALLATION (DVI-PROWALL-9X)

- I. Connect your source device such as digital signage player to DVI/HDMI Inputs on the DVI-PROWALL-9X.
- 2. Connect all displays/screens to DVI/HDMI Outputs on the DVI-PROWALL-9X.
- 3. Power up the DVI-PROWALL-9X.
- 4. Switch on all devices connected and then control the display output through RS-232, Ethernet and software.

GENERAL INSTRUCTIONS

- 1. Before you begin the software installation from the CD provided or latest CS from the website, please ensure the DVI-PROWALL-9X is connected to AC power and your PC via USB or connected to the same network as the DVI-PROWALL-9X
- 2. PC Requirements-Windows® XP/Windows Vista®/Windows® 7
- 3. Ensure your laptop or desktop is plugged into AC power during the update process. It is not recommended to use only battery power during the installation. Do not remove power at any time during the process as this could lead to incomplete results. See Section 5 Operation Method B Software Control for more information.





DVI-PROWALL-9X

LAYOUT 1- DUAL INPUT VIDEOWALL PICTURE IN PICTURE



3X3 VIDEOWALL





3.2.1 FRONT PANEL (DVI-PROWALL-9X)



3.2.2 REAR PANEL (DVI-PROWALL-9X)



I. POWER SUPPLY: Power Cord supplied with unit	2. INPUT PORT: DVI/HDMI Input
 INPUT PORT: DVI/HDMI input, supports input resolution up to 4K2K@30 	4. INPUT PORT: VGA/Component input
5. RS232 CONTROL: RS232 control port	6. POWER SWITCH: Power ON/OFF switch
7. ETHERNET CONTROL: Ethernet control port	8. OUTPUT PORT I-9: DVI/HDMI outputs



4. SUPPORTED RESOLUTION

Input Resolution Supported								
HDMI	VGA	Component (YPbPr)						
640x480	800x600 @60Hz	EIA 720x480p @59.95(60)Hz						
720x480	1024x768 @60Hz	EIA 720x576p @50Hz						
720x576	1280x720 @60Hz	EIA 1280x720p @59.94 (60)Hz						
800×600	1280x768 @60Hz	EIA 1920x1080i @59.94(60)Hz						
1024x768	I 280x960 @60Hz	EIA 1920x1080p @59.94(60)Hz						
1152x864	1280x1024 @60Hz							
I 280x720	I 360x768 @60Hz							
I 280x768	1400x1080 @60Hz							
I 280×800	1600x1200 @60Hz							
I 280x960	1920x1080 @60Hz							
1280x1024								
I 360x768								
l 366x768								
1400×1050								
1440x240								
I 440x288(576i)								
1440×900								
1600x900								
1600x1200								
1680×1050								
1920x540(1080i)								
1920x1080								
1920×1200								

Output Resolution Supported
800x600@60
1024x768@60
I 280x720@60
1280x1024@60
I 366x768@60
1440x900@60
1440x1050@60
1600x1200@60
1920x1080@60
1920x1200@60



System Requirement and Precautions

- 1. Whenever powering off the DVI-PROWALL-9X, please stay unpowered for at least 5 to 10 seconds to allow power capacitors to discharge.
- 2. The DVI-PROWALL-9X provides software control program which runs under Microsoft Windows 98, 2000, XP, 7 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 DVI-PROWALL-9X.

Start the software control program

When clicking on the executable file, the following dialog will pop-up. It has two ways to control the DVI-PROWALL-9X device (under Microsoft Windows 7, please run as administrator). RS-232 serial Mode: Use RS-232 to connect the port on device and computer. Select correct COM port

and click the 🧭 button.

Ethernet Mode: Enter the device IP address and click the 🚺 button.

RS-232 COM Port: COM4 ▼	8
© Ethernet	
IP: 192 . 168 . 1 . 223	

After the software control setting is accomplished, it will enter directly to control interface.



9-Video Wall 2 3 4 	5 6 7 × ip configure info or refresh 1 connected
Source setting Source A: HDMI1 VGA YPbPr Source B: HDMI2(4K2K) Display Mode Full (rotation) Full (rotation) Full (rotation) 	
PIP 1 PIP 2 PIP 3 PIP 4 Input Rotation (only for full screen) Rotation 90 Rotation-90	Start Horizontal Priority Vertical Horizontal Vertical Horizontal Width Priority Vertical Height Height Apply

Control Interface

1. Connection Status:

Show the connect information and status. If you use RS-232 serial control Mode to connect device



2. Input Control:

In this part, you can set up the input source, source display mode and screen rotation.

(I) Source setting

Source setting	ł
Source A:	HDMI1 ○ VGA ○ YPbPr
Source B:	HDM12(4K2K)

Set the Input source. You can select at most two input source.



(2) Display mode



In here, we provide 7 default mode and one customize mode for you to select.

			200 - 10 7 - 10	
			A STATE	
				•
	Start			
Horizontal	390	Width	1265	preview
Priority Vertical	210	Height	715	Apply
	Start			
Horizontal	115	Width:	1730	preview
- Vertical	OF	1.11.1.1.		

In the right part of control interface, it supply user to customize the display mode.

The different color of frame represents the different input source. The information of coordinate shows the position of input source screen. In a different color frame, it will show a white circle in the right corner. User can slide the white circle to resize the input source screen or adjust the position by setting coordinates, use can also can click the *Priority*. button to make the window precedence.



(3) Input Rotation

Please take a closer look at this function. This function for full screen mode use only. When full screen mode is selected, the following window will pop-up. Two directions to rotate the input screen is available.

Input Rotation (only for full screen)		Input Rotation (only for full screen)	
Rotation 90 Rotation-90	or	Rotation 90 Rotation-90	

3. Output Control

In this part, user can set up the output resolution, display setting and the output's brightness and contrast.

(1) Output Resolution

Set the output resolution. User can choose the desired display icon to select the output port and setup resolution. When setting the different resolution, the coordinate of output will also be changed.





(2) Display setting

It has two modes can set up the display.

> Customize

In Custom define mode, user can slide the white circle to adjust the size of the output screen or input the number to adjust the coordinate. In addition, if user want to understand or estimate which part you may select, it also can select the button to show grid on the graph. After the setting, please click O Grid



Selected Output: Output 1

🔘 Grid 💿 None

Coordination in i	nput			
Horizontal start:	0	Width:	1530	Apply
Vertical start:	0	Height:	900	

Quick Select

Display Setting			
Oustomize			
Quick Select			
Horizontal cut:	1	•	
Vertical cut:	1	•	
Number:	1	•	

In Quick Select mode, user can define how to cut in both directions and the image you want to display.

TV. (3) Contrast/Brightness

In here, user can adjust the brightness and contrast of output.





4. Advancing setting

🥷 9-Video Wall	
	
Save as Load from file Apply	Firmware Update Input Card Output Card View EDID
Learn EDID From default: 1.Full-HD(1080p@60)-24bit 2D 2ch	From: HDMI 1 View EDID Description:
To: HDMI 1 Learn	
	TIS FACTORY RESET

(I) File Options

File Options		
Save as	Load from file	Apply

User can click the Save as... button to save all configuration for future use.

The Load from file button is for loading and to read configuration settings from existing files.

- (2) Learn EDID
 - Select Default EDID (1-4 default EDID).

From default:

1.Full-HD(1080p@60)-24bit 2D 2ch	Ŧ
1.Full-HD(1080p@60)-24bit 2D 2ch	
2.HD(1080i@60)(720p@60)-24bit 2D & 2ch	
3.Full-HD(1080p@60)-30bit 2D 2ch	
4.4k2k@30-24bit 2D & 2ch	

(The default EDID of 4K2K only suit for HDMI 2)

- Select Input.
- Click the Learn button to learn default EDID.



- (3) View EDID content
 - Select the EDID input source (HDMI I, HDMI 2).
 - Click View button to read the EDID description and analysis.
- (4) Input Card firmware update

🖳 Input Card Firmw	are update		
Firmware Update			
Load File	File Size :	0	
Start			Abort
Status :			

- Make sure your USB is connecting and the connecting status is CONNECTED
- Click the Input Card button to enter the interface.
- Click Load File button to select the firmware file which you want to update.
- Click Start button and the firmware will start to update.



(5) Output Card firmware update

	Ouput card firmware update				
	Firmware Update				
	Load File File Size	: 0			
	Output1	Output2	Output3	Output4	
	Output5	Output6	Output7	Output8	
	Output9	Output10	Output11	Output12	
	Start	bort	Type Set		
	Status :				
L					
> M	lake sure your USB is	connecting an	d the connecting	status is	CONNECTED
⊳ C	lick the Output Card	button to	enter the interface	Э.	
⊳ c	lick Load File utto	on to select the	firmware file whi	ch you wai	nt to update.
					•
⊳ C	lick Start but	ton and the fir	mware will start t	o update.	
► A ²	fter firmware update	, it will display	the status of each	output car	rd.
Ouput	t card firmware update		Second Statistics		B
Fir	mware Update				
	Load File File Size :	113268			
	:\Users\User\Desktop\WW13\	VW1312P\bin\Relea	SS VOUTFIRM WAREDA	.TA.bin	
	A				
	Output1	Output2	Output3	• •	utput4
	🕻 Output5 🛛 💊	Output6	Output7	- 🗙 0	utput8
	Output9	Output10	Output11	ە 🗶	utput12
	() trut?	hort		•	
			T A DE SE	•	
Sta	atus : Complete!				



Page 19

- (6) Factory Reset
 - > Click Click FACTORY RESET button to do factory default reset.
 - > This default reset process will take approximately 10 seconds.



> After a dialog complete box pops up, please restart the machine.



5. IP Configure

You also can use the Ethernet to control software program. First, click the environment of the configuration of the ethernet setting from device or manually set to device. After the step of IP configuration, please restart the machine.

NetWork		B
NetWork		
IP	· · ·	
Mask		
Gateway		
	Read from device Write to device	



6. Info

Read the software and firmware version.



7. Refresh

This function not only can refresh the information of setting but can also reconnect the device. You can click the **O REFRESH** button to update the control connection. After selecting this button, a pop-up "ReConnect" window will allow you to select the type of connection required for this device.

Reconnect				x
RS-2 CON	32 I Port: COM4		•	
🔘 Ethe	rnet			
IP:	192 . 168	. 1	. 223	



6. EDID LEARNING

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

There is a method to do EDID Learning as below Software Control: Please refer to the **Operation Approach/Software Control through RS232 port (Page 12~13.)**

There are four embedded default EDIDs as below:

- I. Full-HD(1080p@60)-24bit 2D | 2ch
- 2. Full-HD(1080i@60)(720p@60)-24bit 2D & 2ch
- 3. Full-HD(1080p@60)-30bit 2D | 2ch
- 4. 4K2K@30-24bit 2D & 2ch



SECTION 7: SPECIFICATIONS

Model Name		DVI-PROWALL-9X	
Technical			
Role of usage	;	Video Wall Processor	
HDCP comp	liance	Yes	
Output Disp	olays	Up to 12	
Video bandw	idth	DVI [Single-link 4.95Gbps],HDMI [2.25G to 6.75Gbps],Component [30MHz],VGA	
Video suppor	rt	Up to 1920x1200@60 / 4K2K@30	
Video loop-o	out	Optional	
Audio suppor	rt	No	
Input Forma	t Support	HDMI/DVI / VGA / Component	
ESD protecti	on	Human body model — ± 19 kV [air-gap discharge] & ± 12 kV [contact discharge]	
Input		2x DVI/HDMI + 1x VGA + 1x Component +1x RS-232 + 1x RJ-45	
Output		9x DVI-D/HDMI	
Control		RS-232 / Ethernet	
Input TMDS	S signal	I.2 Volts [peak-to-peak]	
DVI connec	tor	DVI-D [29-pin female, digital only]	
RS-232 Con	nector	DE-9 [9-pin D-sub female]	
RJ-45 connec	tor	WE/SS 8P8C	
Enclo	sure	Metal case	
	Model	438mm x 438mm x 89mm [17.25" x 17.25" x 3.5"]	
Dimensions (L x W x H)	Package	494 x 494 x 100mm [19.4" x 19.4" x 3.9"]	
· · ·	Carton	510 x 510 x 252mm [20" x 20" x 10"]	
Weight	Model	l 3.6kg [30lbs]	
W Cigne	Package	14.5kg [32lbs]	
Fixed	ness	IU rack-mount with ears and Wall hanging holes	
Power	supply	AC Power 100-240V	
Power Cor	nsumption	60 W (max)	
Operation te	mperature	0~40°C [32~I04°F]	
Storage te	mperature	-20~60°C [-4~140°F]	
Relative humidity		20~90% RH [no condensation]	





NOTE: Incorrect placement of IR Blaster and IR Extender into the extender may result in the failure of the IR extenders.

Please check carefully before plugging in the IR extender to the respective IR sockets. It is marked clearly with IR 1: IR EXTENDER /IR 2: IR BLASTER

WARRANTY WILL NOT COVER THE DAMAGE





NOTE

The QUALITY and TRANSMISSION of the video signals depends on the characteristics and quality of the UTP cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/upto 300m) for best performance.



Unshielded CAT6 with metal RJ-45 connectors is recommended.



NOTICE

- 1. All HDMI over UTP transmission distances are measured using Belden CAT6A (625MHz), 4-Pair, U/ UTP-Unshielded, Riser-CMR, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, Polyolefin Insulation, Patented Double-H spline, Ripcord, PVC Jacket using Quantum 980 signal HDMI Video Generator Module Video Pattern Testing.
- 2. The transmission length is largely affected by the type of category cables, also the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m or 1000ft bulk cable) can transmit a lot longer signals than stranded UTP cables (usually in the form of patch cords). Shielded STP connectors are better suit than unshielded UTP connectors. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid cables are your only choice.
- 3. EIA/TIA-568-B termination (T568B) for category cables is recommended for better performance.
- 4. To reduce the interference among the unshielded twisted pairs of wires in category cable, you can use shielded STP cables with shielded connector to improve EMI problems, which occurs in long transmission.
- 5. Because the quality of the category cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your category cables. For resolution greater than 1080i or 1280x1024, a solid CAT6 cable is the only viable choice.

PERFORMANCE GUIDE FOR HDMI OVER CATEGORY CABLE TRANSMISSION

PERFO	RMANCE RATING	TYPE OF CATEGORY CABLE			
WIRING	SHIELDING	CAT5e CAT6		CAT6A/7	
SOLID	UNSHIELDED (UTP)	****	****	****	
SOLID	SHIELDED (STP)	***	****	****	
STRANDED	UNSHIELDED (UTP)	*	**	**	
STRAINDED	SHIELDED (STP)	**	*	**	
TE	RMINATION	PLEASE USE EIA/TIA-568-B TERMINATION (T568B) AT ANY T		T568B) AT ANY TIME	







Control Your Video

TECHNICAL SUPPORT



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