LED Large Screen Video Mosaic Controller

User Manual

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Before using the Mosaic Controller, please read the instruction carefully and preserved for reference in the future.

MIG-D800

Statements

The product specifications and information mentioned in the manual is just for reference, will not give prior notice if there is any updated. Unless there is a special agreement, it is just used as guidelines. All the statements or information in the manual shall not constitute any form of guarantee.

Directory

Briefs

Thanks for your purchasing our Video Mosaic Controller. Do hope you can enjoy the experience of the product performance. The design of the Video Mosaic Controller conforms to international and industry standards, but if with improper operation, there will be a personal injury and property damage. In order to avoid the dangerous, please obey the relevant instructions when you install and operate the product.

Trademark Credit

- VGA and XGA are the trademarks of IBM.
- VESA is a Video Electronics Standards Association’s trademark.
- HDMI、HDMI mark and High-Definition Multimedia Interface are all from HDMI Licensing LLC.
- Even if not specified company or product trademarks, trademark has been fully recognized.

About Software

Do not change, decompile, disassemble, decrypt or reverse engineer the software installed in the product, above all the acts are illegal.

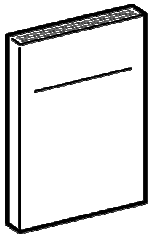
Features

- Support ultra-high output resolution and ultra-high horizontal frequency resolution.
- Support the quickly switching between the HD point to point splicing of multi-display cards and normal video splicing.
- Image-text overlay, sectional drawing combining function, convenience to achieve the captions superposed and image compound.
- The multi-machine quick recovery function of working template can make you convenient to quick switch in a variety of applications.
- Offline scheduled task function can switch the working state as your required.

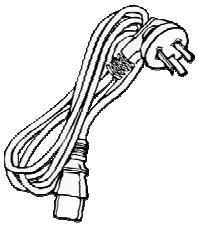
Using Directions

Included Accessories

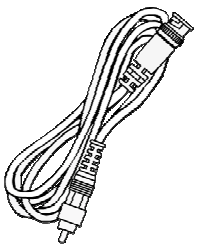
Using manual



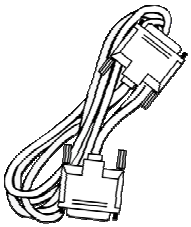
Power line



CVBS cable × 2

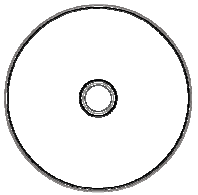


DVI signal cable



USB cable

Disk



Certificate of quality

Safety instructions

- Please use the right power supply according that the power input voltage for this product range is 110～240V AC，50/60Hz.
- When you need connect or pull out any signal or bound guideline. Please confirm that all the power supply cords have been pulled out ahead.
- When you need to add any hardware device to the product or remove from it, make sure all of the signals and power cables have been pulled out ahead.
- Before you operate any hardware, please turn off the video controller’s power, and to set your electrostatic by touching the ground surface.
- Please use it in clean, dry and ventilated environment, not use it in the high temperature, humidity environment.
- It is the electronic product; please stay away from the fire, water and of which is inflammable and blast, dangerous.
- It is with high pressure components, please don not open the case or maintain it by your own.
- As there is exceptional condition with smoke, ill-smoking, please turn off the switch at once and contact with dealers.

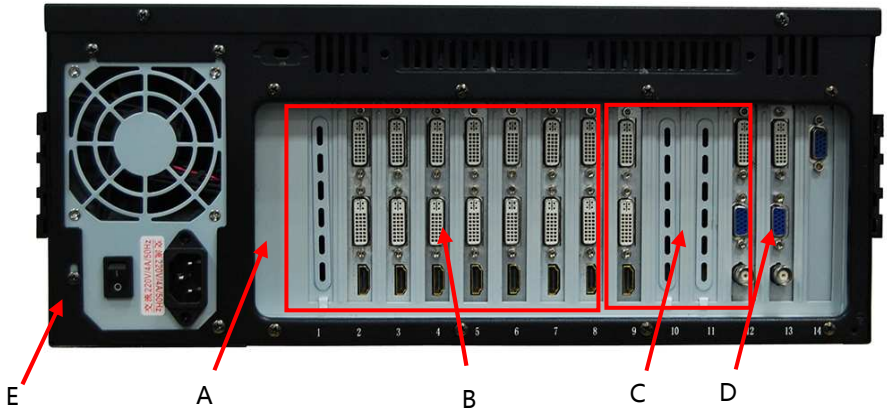
Product Introduction

Brief

- MIG-D800 series video mosaic controller is developed for the large screen display system, adopted the top image processing chips, internal 12 bits processing, with clearer images and richer colors.
- Advanced interlace motion image processing technology, to remove video motion tail or jagged, for the normal PAL/NTSC video, output image will be clearer, for the HD 1080i signal, output image details will be rich, full color and image quality is in the leading level.
- Advanced image scaling technology, can support tens of output resolution: 2304×1152、2560×816、1920×1200、1536×1536 and other resolution, maximum refresh frequency rate can be 120Hz, also can scale the input image point by point according to the screen size.
- Intellectualized large size LED screen seamless splicing technique, the user just needs to have simple setting; they could realize the several sending cards image splicing. The unique frame synchronization bus technology ensure high speed motion picture fluently without tail or derangements.
- Support the seamless switch between different input signal sources and PIP function.
- The whole unit is with pure hardware framework, can work on electricity at once, the splicing image is stable and reliable.

Front &Rear Panel Introduction

1. Rear panel introduction：



There are total 14 slots in the rear panel of the mosaic controller, divided into 4 areas（A-D）and can be inserted into the different function card respectively.

A: No.1 slot, install case cascading card, through the cascading card, can connect many sets of mosaic controller together to support even larger LED screen, cascading card belongs to optional part.

B: No.2-9 slot, install video output card, mainly for the large screen’ s splicing, the two DVI output ports on the each output card are used to connect the sending card of LED system, the two DVI output the same signal, can be used for the condition of sending card’ s splicing. At the same time there is one way DVI input port on the card, using HDMI form, it can receive the DVI input signal, used for support the input signal when the super resolution splicing point by point.

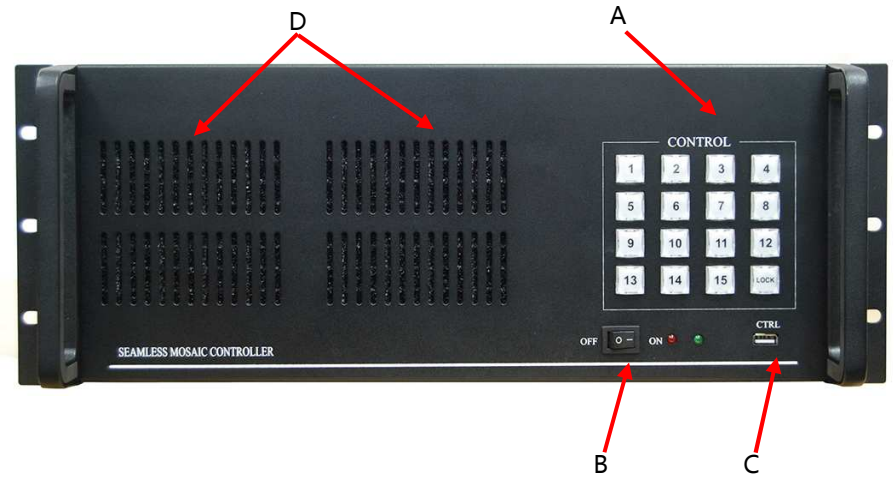
C: No. 10-13 slot, install video capture card，the overall unit standard configuration is with one pieces of video capture card, but also can select many pieces, each video capture card has one way DVI, VGA and AV input, also can expand SDI，VGA，AV input，etc.，each card can support one PIP display.

D: No.14 slot, install monitoring output card, used for the whole mosaic

controller’ s monitor out and with VGA output interface.

E: The power switch of the mosaic controller.

2. Front panel introduction :



A: The template control section, totally with 15 keys from 1-15, and corresponding to 15 kinds of splicing mode. Tickle the buttons, mode selected, key with orange light says mode effective; If the key blinks twice continuously and then put out, said the current selected mode is invalid. "LOCK" key is used to lock the current selected mode, press it, "LOCK" key will be with orange light, said the button locked, then press no.1-15 button without any response; Then press the "LOCK" button, the "LOCK" button burn out, said the key lock cancelled, can use 1-15 th keys normally.

B: the switch on the panel is standby switch, choose "ON", the system is working and the green light is on; Choose "OFF", the system is waiting, the red light, the system is without output.

C: CTRL interface is the upper machine interface, it can be used to control the work of the whole mosaic controller by the upper machine software

D: The air intake of the fan.

Technical Specification

Input Indicators	
Port	**Standard**
AV	PAL/NTSC
VGA	VESA standard
DVI	VESA standard （support 1080i）
HDMI	EIA/CEA-861, HDMI-1.3
SDI	480i、576i、720p、1080i/p（3G SDI）

Output Indicators			
Port	**Numb**	**Location**	**Resolution**
VGA	1	Monitor	1024×768/60Hz/75Hz/85Hz/100Hz/120Hz 1280×1024/60Hz 1440×900/60Hz 1600×1200/60Hz 1600×1200/60Hz – Reduced 1680×1050/60Hz 1920×1080/60Hz/50Hz 2560×816/60Hz 2048×640/60Hz 1920×1200/60Hz 2304×1152/60Hz 2048×1152/60Hz 1024×1280/60Hz 1536×1536/60Hz 1200×1920/60Hz 2720×1920/30Hz
DVI	2	Video output card	

Electric Spec	
Input power supply	110～240 VAC，50/60Hz
Power consumption	160W
Working temperature	0~45℃
Overall Dimension	482×182×502（mm）
Weight	12.7 Kg

System Architecture

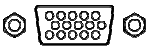
Hardware Module

Board card design

MIG-D800 series video mosaic controller is with input and output separated card design, has many kinds of board card and can realize the rich scene applications. Currently all the boards are shown as below:

Board card type		
Card name	**Location**	**Remark**
Output card	2-9 slot	The video signal is via the video capture card to the video mosaic controller, after processed, output to the screen by the video output card.
Capture card	10-13 slot	External video signal comes into the video mosaic controller by the video capture card.
Monitor card	14 slot	Monitor is using VGA signal output to monitor the output effect of the mosaic controller.
Case cascading card	1 slot	By the cascading card, can connect the several video mosaic controllers together to meet the complex project' s requirements, this is optional.
Input expanded card	10-12 slot	Expand the video signal input source, it is optional

Each board card has some video input & output ports with the form as below:

Video input and output port graphic representation		
Name	**Graphical representation**	**Remark**
BNC		Coaxial-cable
DB15		Used for transmit VGA signal
DVI		Digital video interface
HDMI		High definition multi-media digital interface

Different kinds of board card are with different ports, next will give a simple introduction for all kinds of board card.

Video capture card				
Port name	**Form**	**Direction**	**Quantity**	**Signal description**
AV1	BNC	Input	1	PAL/NTSC
VGA	DB15	Input	1	VESA standard
DVI	DVI-D	Input	1	VESA standard，support 1080i

Video output card				
Port name	**Form**	**Direction**	**Quantity**	**Signal description**
DVI	DVI-D	Output	2	Please check details in "output signal index"
DVI	HDMI	Input	1	EIA/CEA-861, HDMI 1.3

Monitor out card				
Port name	**Form**	**Direction**	**Quantity**	**Signal description**
VGA	DB15	Output	1	Please check details in "output signal index"

Input expanded card				
Port name	**Form**	**Direction**	**Quantity**	**Signal description**
AV	BNC	Input	3	PAL/NTSC
VGA	DB15	Input	1	VESA standard
SDI	BNC	Input	1	480i、576i、720p、1080i/p(3G SDI)
SDI	BNC	Loop out	1	480i、576i、720p、1080i/p(3G SDI)

Case cascading card				
Port name	**Form**	**Direction**	**Quantity**	**Signal description**
DVI	DVI	Output	1	Include synchronization, control and other information.
DVI	DVI	Input	1	

Standard system

Following is the standard system structure of MIG-D800 series video mosaic controller :

Standard system structure		
Board card type	**Quantity**	**Remark**
Main board	1	Standard system support one way AV, one way VGA, one way DVI input （video capture card)and 4 ways DVI input(video output card), can realize the needs of 4 LED screen splicing and display one way PIP, and support 2 sending cards cascading.
Capture card	1	
Output card	4	
Input expanded card	0	
Monitor card	1	
Case cascading card	0	

Control panel

In the front of video mosaic controller, there is a control panel which is used to control the video mosaic controller simply. The whole panel is made by 16 lamp key, the function and effect are shown as below:

Control panel		
Key name	**Quantity**	**Functional description**
Numeric key	15	a) When the locking key is not light up, it is used to switch the working template. b) When the locking key is light up, to press numeric key, the locking key will be glittering to tip the current state is locked and not to accept the numeric key. If press a certain numeric and it is shining then reverts to the pre-state, it means that there is no the template corresponding the number.
Locking key	1	Switching the locked state, in the locked state, locking key light up, otherwise, it goes out.

The numeric key of the control panel, used to switch the working template, and the working template is set and saved by the users themselves in the PC software of the mosaic controller, so to fulfill the system settings, need to use the PC software of the mosaic controller, and the numeric key of the control panel is only for the quick switch between the existing working templates.

Software Hint

Important concept

In order to understand the product' s control method better, need to understand the following nouns in advance, when you know the part to this, you would have a general understanding about the control software of our product.

Important concept	
Concept	**Description**
Output resolution	The output resolution of the video output card should be set to the resolution that can be supported by the after-level video equipment.
Work layer	The graphics control area in the middle of the software is divided into fusion layer and splicing layer.
Fusion layer	Used to control all the video capture cards.
Splicing layer	Used to control all the video output cards.
The whole screen horizontal pixel	a) It is a specific attribute of the splicing layer and different splicing layer can be set in different value. b) This attribute acts on all the video output card of the splicing layer. c) Click the tag of the splicing layer or the blank area of the layer, then can check or set the two attributes in the attribute
The whole screen vertical pixel	

	bar.
Bus channel	a) Video mosaic controller has an internal video bus channel. b) In order to make the video signal collected by all the capture cards of the mosaic controller can be fused together for display, should hang up all the capture cards to the internal video bus channel.
Base map	The capture card is located in the rear of the bus channel, can add a background image for the entire bus channel, this is called for base map.
Board card list	Here will be display all the capture cards and output cards, divided into three areas: A) State area: If the state area has "√" hint, suggested that the board card is at the working layer, namely, has generated a rectangular control in the corresponding work layer. B) Icon area : capture card and output card will be displayed in different icon. C) Name area: the name of the display card. Operation mode: a) Drag the board card from the list to the blank area of the work layer by the mouse, b) Doubleclick the certain board card, in order to add it to the current work layer.

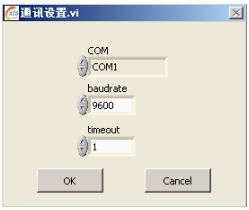
Important concept	
Concept	**Description**
Script	The script exists in the file form, which is used to describe the data collection of the whole mosaic controller's working state. Script files can be saved in the local hard disks of the computer, or other storage medium, also can be sent by email. Through the script, the mosaic controller can be back to a working state quickly.
Template	Template is similar as the script, is also used to describe the data collection of the whole mosaic controller's working state, the template doesn't exist in the file form but is saved in the internal storage of the mosaic controller. Through the template, the mosaic controller can be back to a working state quickly. If not to use the control software. can use the numeric key to restore the template of the mosaic controller's control panel.
Timetable	The mosaic controller can be set by timetable, to switch working pattern automatically. Corresponding with the difference between the script and template, timetable is also divided into two types: a) Online timetable: depend on control software, to revert the script on schedule. b) Offline timetable: depend on the internal timetable, to restore the template as planned.
Autoregulation	To adjust the video signals automatically that come from all the VGA ports， so make its phase, clock to be the optimum state.
Reset	Divided into the board card reset and restore the factory set.
Debug	Manual operation the input menu can be used for debugging the machine.
Attribute bar	Can check and set all the working parameter of the mosaic controller.

Work layer concept	
Work layer	**Description**
Fusion layer	a) Video capture card logic control interface. b) The working state of the each capture card can be shown visually. c) Each capture card can form a rectangular control in the fusion layer.
Splicing layer	a) Video output card logic control interface. b) The working state of the each output card can be shown visually c) One output card just can form a rectangular control in the splicing layer.

Attribute column concept	
Control	**illustration**
Video capture card	a) Input source, used to switch the input channel of video signal. b) Output window’s coordinate and size. c) Transparency d) Picture quality e) Image-text overlay f) Base map’s coordinate and size g) Image interception (sprite’s splicing parameter)
Video output card	a) Input source, used to switch the input channel of video signal, default is internal bus. b) Output area’s coordinate and size. c) Loading screen’s attribute. d) Picture quality e) Dual picture(include sprite’s splicing function)
Fusion layer	Bus channel reset button
Splicing layer	General output size, is also the total pixels of unequal splicing.

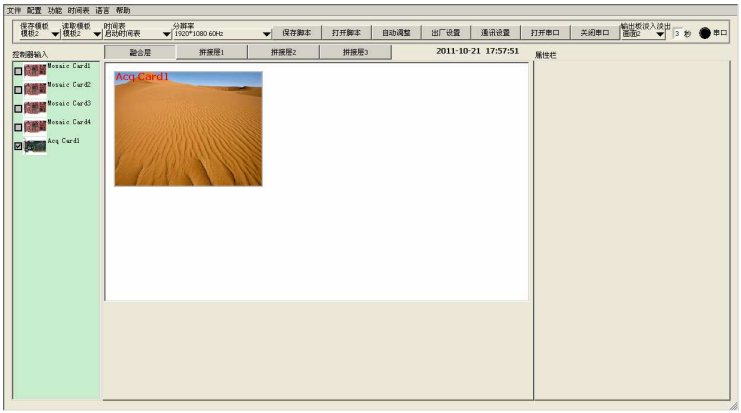
Software Introduction

1. To open the mosaic controller by connecting the USB port of the controller’ s front panel with the USB port of the computer, and doubleclick the icon of the PC to operate the upper computer software, please check details as below:

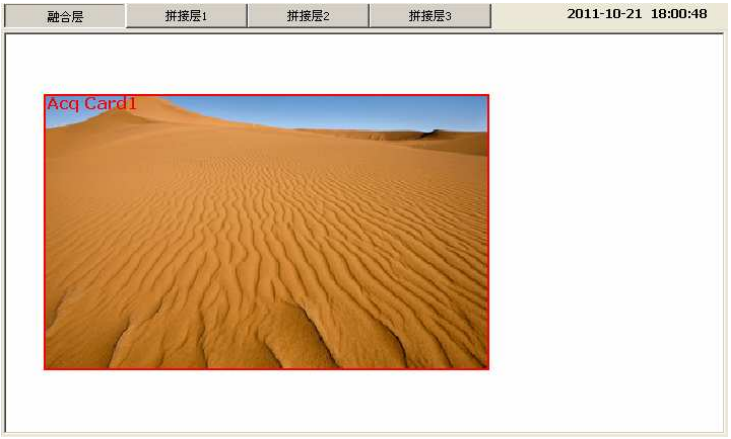


To choose the correct COM port, and set the baud rate to be 9600, then press OK to confirm, then can finish the connection between the upper computer and the mosaic controller.

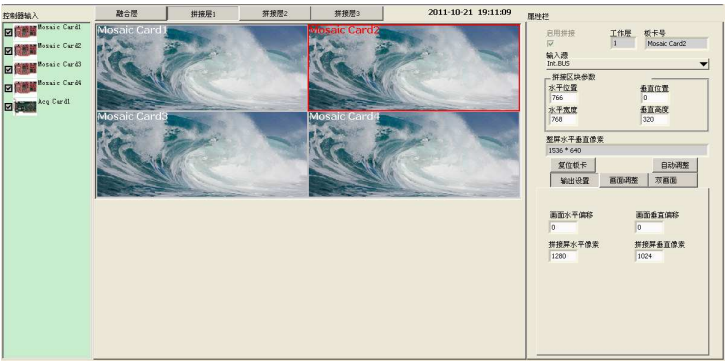
2. Opening the upper computer software, initial picture is as below:



The upper left is the list of the video capture card and video output card, the standard system has 1 video capture card (Acq Card1) and 4 video output cards Mosaic card 1-4),the middle part is divided into fusion layer and splicing layer1-3 , and the fusion layer is corresponding to the operation of the video capture card, the splicing layer is corresponding to the operation of the video output card.



To select the splicing layer 1, drag the video output card to the splicing layer 1 by using the mouse, can open a small window on the splicing layer 1, which is corresponding to the actual output size of the output card. For the standard system, it can be open 4 windows which are corresponding to the 4pcs video output card respectively, each window can be set horizontal width, vertical height and location, just need to connect the 4 windows together, then can finish the whole LED panel’ s splicing. Please check details as below:



To select the fusion layer, use the mouse to drag the capture card to the window, then can set the corresponding input signal of the capture card,

output window’ s size, location and so on.

After finishing the setting of splicing layer and fusion layer, then can use the mosaic controller normally.

Warranty

The whole unit warranty

- One year (since the date of purchasing invoice) ;
- If the invoice lost the 60days after the production date will be the purchasing date for the warranty.

The warranty provisions

- The machine soaking and collisions produced besmirch or surface scratches and other abnormal using causes of malfunction or damage.
- Demolition machine or modification, which is not to be agreed by our company.
- Using in the not specified working conditions, resulting in fault or damage (such as high temperature, low voltage or unstable etc.)
- Force majeure (such as fire, earthquake etc.) or natural disasters (like lightning, etc.) caused the fault or damage.
- Out of the product warranty.