Professional Quad-View Video Processor with Keyboard & Mouse Control

P/N: AV-GM08K3-S1K

Safety and Notice

The **AV-GM08K3-S1K Professional Quad-View Video Processor with Keyboard & Mouse Control** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the AV-GM08K3-S1K 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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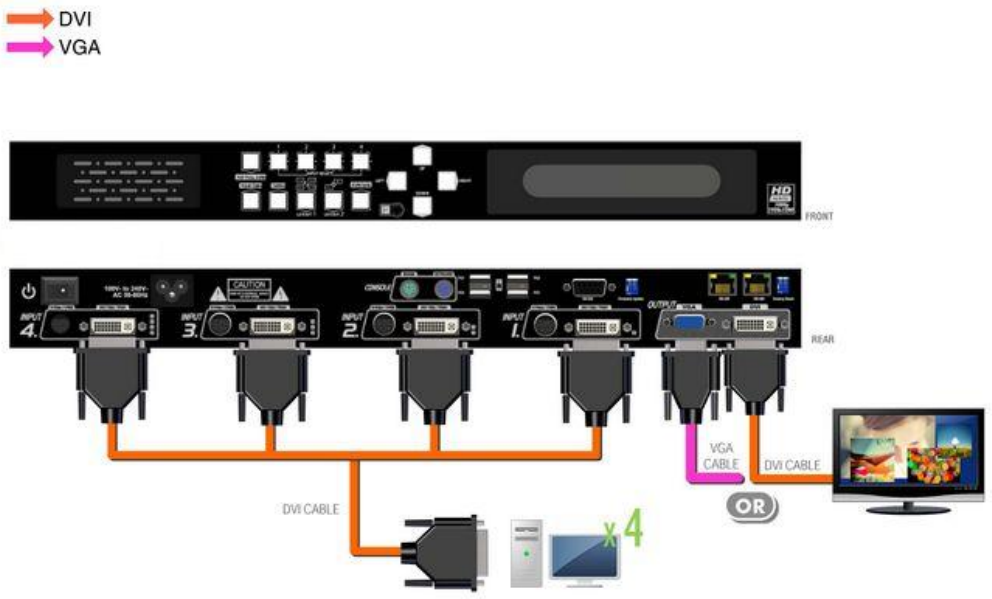
General

The **AV-GM08K3-S1K Professional Quad-View Video Processor with Keyboard & Mouse Control** is an advanced video processor for multimedia presentations. It is an ideal solution for applications where up to four video signals must be displayed on a single display. It supports up to 16 video inputs, of which four can be outputted simultaneously with the desired display layout through software control. The advanced video processor allows you to manipulate output images, wherever positions and whatever sizes you want for viewing two computers or two video signals or a combination. In addition to typical 4 channel video processor, AV-GM08K3-S1K is also equipped with PS2-IN-USB-OUT keyboard and mouse control board. With this feature, users can switch K/M control among 2 to 4 PC sources.

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). Dual outputs are provided in both analog (VGA) and digital (DVI) format, one is connected to remote display and the other is connected to on-site display for real time monitoring.

Figure 1: Configuration Diagram



Features

- Support six most popular video formats: four VGA, four DVI/HDMI, four component, four S-Video and four composite inputs!
- Input resolution support from 640x480 to 1920x1200, interlaced or progressive.
- DVI 1.0
- Support HDCP 1.1
- Dual outputs (DVI / VGA), 640x480 to 1920x1200.
- 4 port KVM control with PS/2 input and USB outputs
- Video background available.
- Adjustable size& position through software.
- Dynamic transition for video sizing and positioning
- Titles, borders and colored backgrounds.
- Resize, position, zoom& pan and blend output video.
- 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.
- Video parameters adjustable (brightness, contrast, color temperature, etc.).
- User-selectable output settings, up to 1920x1200.
- Perfectly as a video screen splitter, a video converter and a video switcher.
- Firmware upgradable for support of new features and technology enhancements.
- Software control through RS-232/RS-485 over Cat-5.
- Can be cascaded to obtain more images using RS-485 control path
- Control protocol available for customer proprietary design
- 1U size.

Specifications

Model Name		AV-GM08K3-S1K	AV-GM08K3-S1PF
Technical			
Role of usage		Multiplexer / video processor	
Dual output support		Yes [DVI & VGA]	
Background video input		Yes	
HDCP compliance		Yes	
Video bandwidth		DVI/HDMI[Single-link 4.95Gbps] VGA[165MHz] Component [30MHz] Composite [13.5MHz] S-Video [13.5MHz]	
Input Video support		480i / 480p / 720p / 1080i / 1080p60 / 1920x1200@75 / 1600x1200@60	
Audio support		No	
KVM support		Yes	NO
Control		RS-232 and RS-485	
Embedded video mixer		Yes	
Cascadable		Yes	
Input TMDS signal		1.2 Volts [peak-to-peak]	
ESD protection		Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge]	
PCB stack-up		6-layer board [impedance control — differential 100Ω; single 50Ω]	
Input		4x VGA + 4x DVI + 4x component + 4x composite + 4x S-Video + 1x RS-232 + 1x RS-485 + 2xPS/2 + 4 x USB	4x VGA + 4x DVI + 4x component + 4x composite + 4x S-Video + 1x RS-232 + 1x RS-485
Output		1x DVI + 1x VGA	
DVI connector		DVI-I [femal,29-pin]	
S-Video connector		9 pin	
VGA connector		HD-15 [15-pin D-sub female]	
RS-232 connector		DE-9 [9-pin D-sub female]	
USB connector		Type A	
PS/2 connector		Mini DIN-6	
RCA connector		75Ω female	
RJ-45 connector		WE/SS 8P8C with 2 LED indicators	
Mechanical			
Housing		Metal enclosure	
Dimensions (L x W x H)	Model	300 x 440 x 44mm [11.8”x1’5.3”x1.7”]	
	Package	310 x 525 x 155mm [1’0.2”x1’8.7”x6.1”]	
	Carton	570 x 580 x 260mm [1’10.5”x1’10.9”x10.2”]	
Weight	Model	3.8kg [8.4 lbs]	2.9kg [6.4 lbs]
	Package	5.9kg [13.0 lbs]	5kg [11.1 lbs]
Fixedness		1U rack-mount with ears	
Power supply		AC Power 100-240V	
Power consumption		35 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 AV-GM08K3-S1K or 1x AV-GM08K3-S1PF 1x Remote Control 4x DVI to DVI&VGA breakout cable 4x VGA to component breakout cable 4x DVI to VGA adapter 1x USB to RS-232 cable 2x 1U rack mounting-ear 1x Installation software CD 1x UL AC power cord & 1x User Manual

Package Contents

1. AV-GM08K3-S1K

2. DVI to DVI&VGA Breakout Cable (DDVY01)

3.VGA to Component Breakout Cable (VYPBA01)

4. DVI to VGA Adapter (DVA01)

5. S-Video & CVBS breakout cable

6. UL AC Power Cord

7. RS-232 to USB Adapter

8.IR Remote Control

8. 1U Rack Mounting-Ear
9. Installation Software CD
10. User Manual

Inputs and Outputs

The AV-GM08K3-S1K has 16 inputs and accepts both graphics and video signals, which come from computers (DVI or VGA), composite, and component video sources respectively. You can pick up four of the ten inputs and then display four of them simultaneously on the same screen. Figure 2 shows the rear panel connectors of a AV-GM08K3-S1K and Table 1 illustrates how you can connect video devices and display to the AV-GM08K3-S1K.

Figure 2: Rear Panel

Default: Turn on the AV-GM08K3-S1K then switch the circled DIP switche simultaneously up and down to factory default mode.

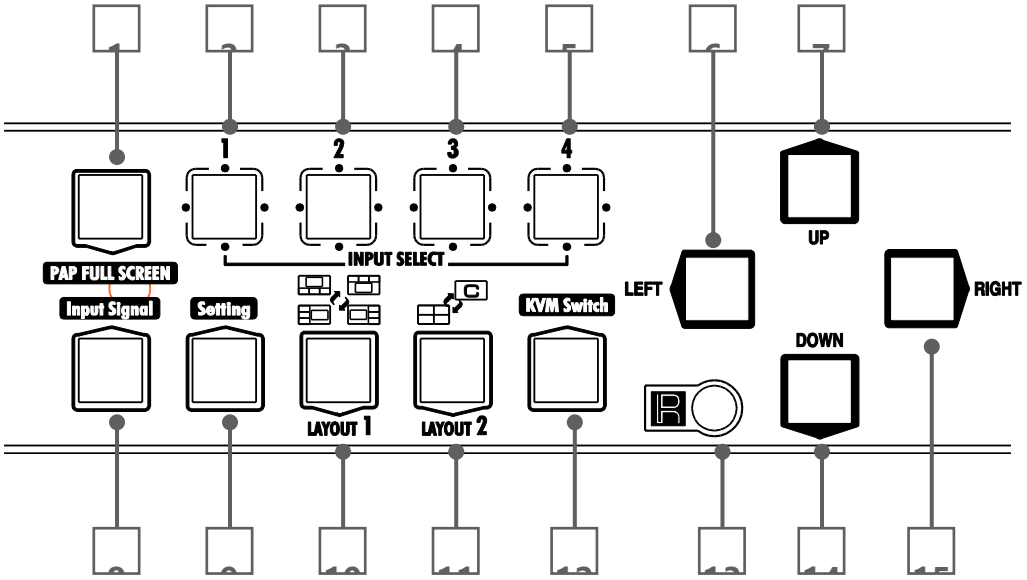
These IO ports support various resolution from 640x480 up to 1920x1200, for more detail of the supported modes, please refer to the Appendix – Supported Resolution.

Table 1: Input/Output Connectors

Input Connector	Video Source
DVI-x **YPbPr-x/VGA-x** **CVBS-x** **S-Video-x** **[x = 1~4]**	[1] DVI
	[2] VGA — with a DVI-to-VGA adapter **(DVA01)**
	[3] Component (YPbPr) — with a DVI-to-VGA adapter **(DVA01)** and a VGA-to-component breakout cable **(VYPBA01)**
	[4] CVBS
	[5] S-Video
Output Connector	Display
DVI-I OUT	[1] DVI display
	[2] VGA display — with a DVI-to-VGA adapter **(DVA01)**
	[3] 1x DVI display + 1x VGA display — with a DVI to DVI&VGA breakout cable **(DDVY01)**

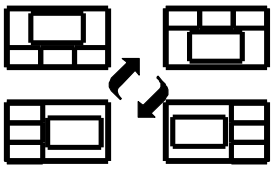
KVM Connector	Keyboard & Mouse Control
KVM I/O	[1] PS/2 compatible Keyboard and mouse
	[2] USB outputs connected up to 4 PC

Control Panel and VFD Menu

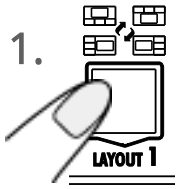


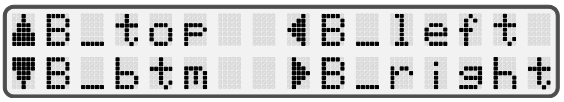
1	PAP Full Screen	11	Function key: Layout 2
2 3 4 5	Input Select	12	Function key: N/A
9	Function key: Input Signal	13	Infrared Sensor
9	Function key: Setting	6 7 14 15	Navigation
10	Function key: Layout 1		

Selecting PIP Window Arrangement
[Main Window with 3 triple sub-windows aside]
You can choose one of the following window arrangement from 4 presets



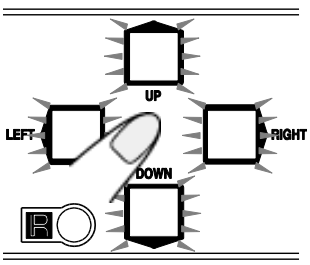
1.





To cancel the operation, press [LAYOUT 1] again

2.



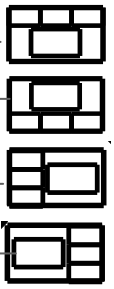
select a type by pressing according button while VFD

B_top: press UP

B_btm: press DOWN

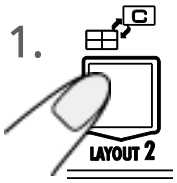
B_left: press LEFT

B_right: press RIGHT



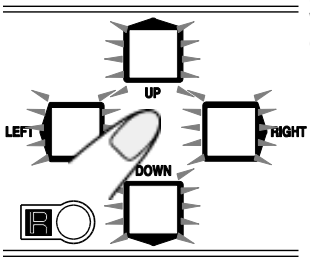
[Quad Windows in crisscross + 3 user-defined custom]

1.



To cancel the operation, press [LAYOUT

2.



select a type by pressing according button while VFD
display prompts
B_top : press UP

B_btm : press DOWN

B_left : press LEFT

B_right : press RIGHT

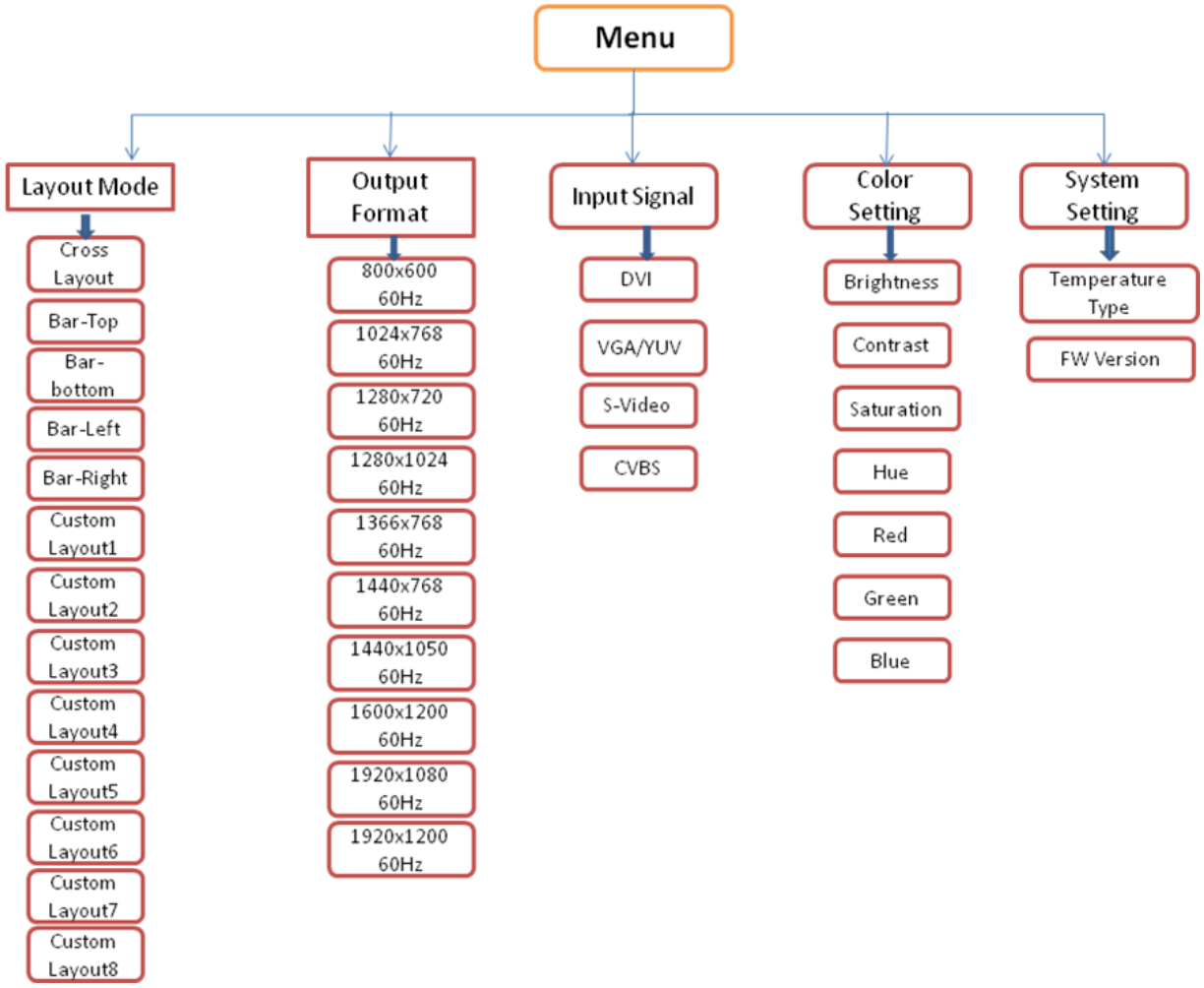
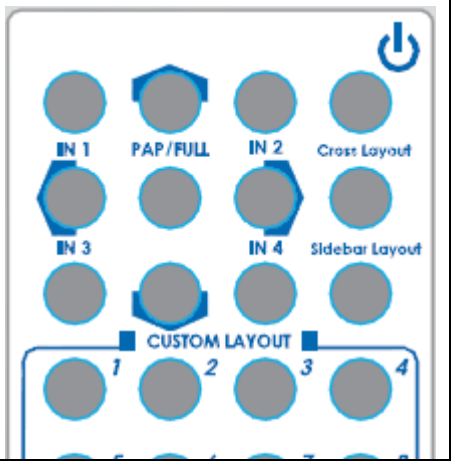


Figure 3: VFD Menu

IR Remote Control

AV-GM08K3-S1K ships with a compact remote control that allows for direct access to most commands used to control the video processor.

IR Remote Button Define		
1. Power Button	Power ON/OFF the device	
2. Cross-Layout	Set PAP layout to default layout (cross type)	
3. Side-Bar Layout	Set PAP layout to default layout (Side-Bar type)	
4. Input CH2	Set channel 2 to be focus channel	
5. Right Button	Menu button	
6. Input CH4	Set channel 4 to be focus channel	
7. Up Button	Menu button	

8. PAP Full Screen	Move to the left titles
9. Down Button	Menu button
10. Input CH1	Set channel 1 to be focus channel
11. Left Button	Menu button
12. Input CH3	Set channel 3 to be focus channel
13. Custom Layout4	Set PAP layout to custom position and size
14. Custom Layout8	Set PAP layout to custom position and size
15. Custom Layout3	Set PAP layout to custom position and size
16. Custom Layout7	Set PAP layout to custom position and size
17. Custom Layout2	Set PAP layout to custom position and size
18. Custom Layout6	Set PAP layout to custom position and size
19. Custom Layout1	Set PAP layout to custom position and size
20. Custom Layout5	Set PAP layout to custom position and size
21. CH4 Source	Change channel 4 input source
22. CH3 Source	Change channel 3 input source
23. CH2 Source	Change channel 2 input source
24. CH1 Source	Change channel 1 input source
25. D Button	Switch KVM to port4
26. C Button	Switch KVM to port3
27. B Button	Switch KVM to port2
28. A Button	Switch KVM to port1

OPERATION SOFTWARE

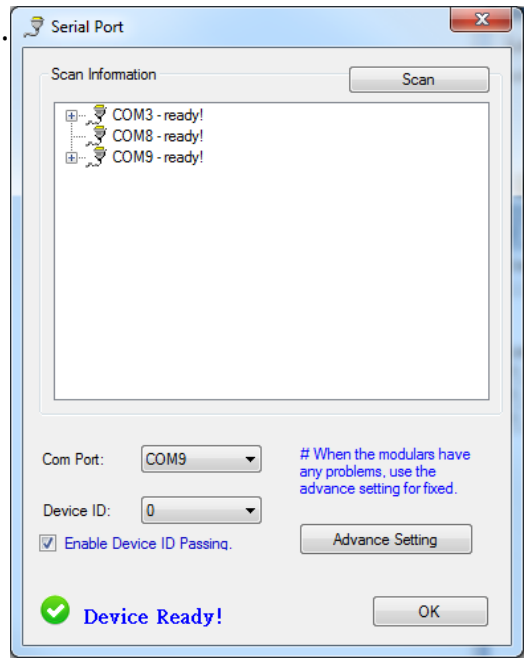
System Requirement and Precautions

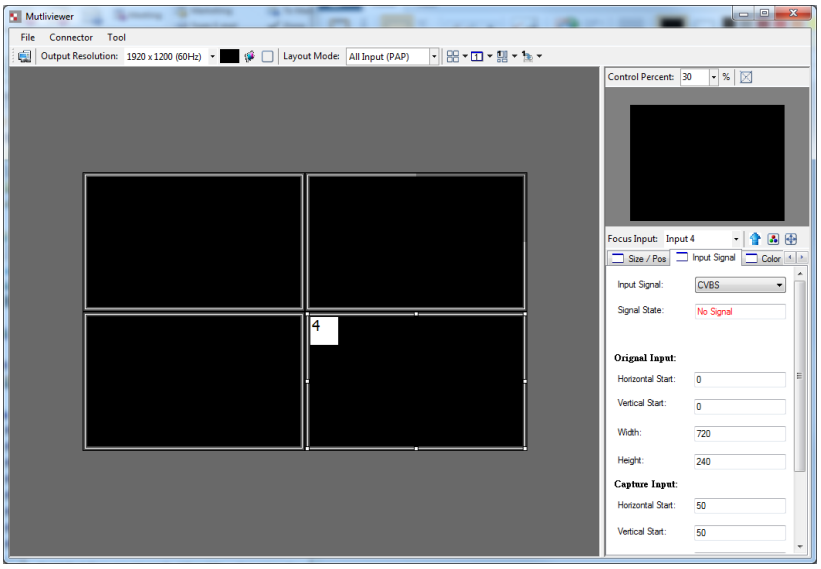
1. The AV-GM08K3-S1PF provides a software control program, Quartet, which runs under Microsoft Windows 98, 2000, XP, Vista through the interface of RS-232 serial control.
2. Before you click on the icon of the software, make sure you have secured the connection between your computer COM port and the AV-GM08K3-S1PF and switched on the AV-GM08K3-S1PF with green LED light.

Instruction of Software Connection

1. Power up the AV-GM08K3-S1PF and you can see VFD on the front panel blink. Make sure the serial port mode is right for your setting. RS-232 mode: , RS-485 mode: or .

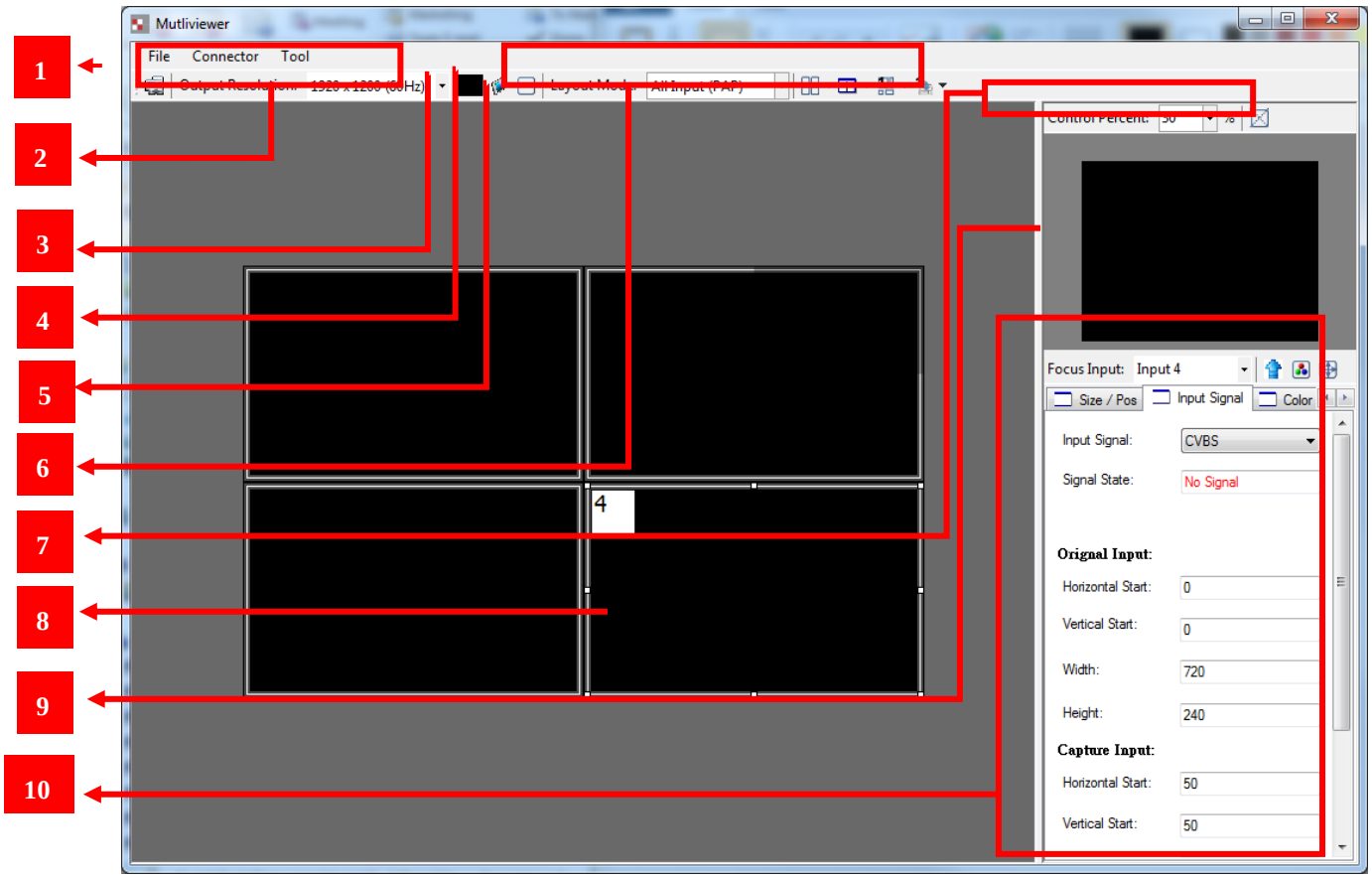
2. The first step after running the software is to automatically link (By last COM port setting) if the device responses correctly through RS-232, it will start application normally, otherwise the dialog will show up. You can click the “scan” button to get detail information. The information will help you choose the correct COM port and Device ID. After set the correct COM port and ID, you can select “Linkage” and click “Execute” button. When the AV-GM08K3-S1PF is correctly connected, you can close the Linkage dialog. If the serial connection is well established, you can see work main control console as below.





Definitions of Menu Buttons and Icons

The software has following menu options available:



1 **Fast Linkage**

This button will update software GUI for device state

2 **Output Resolution**

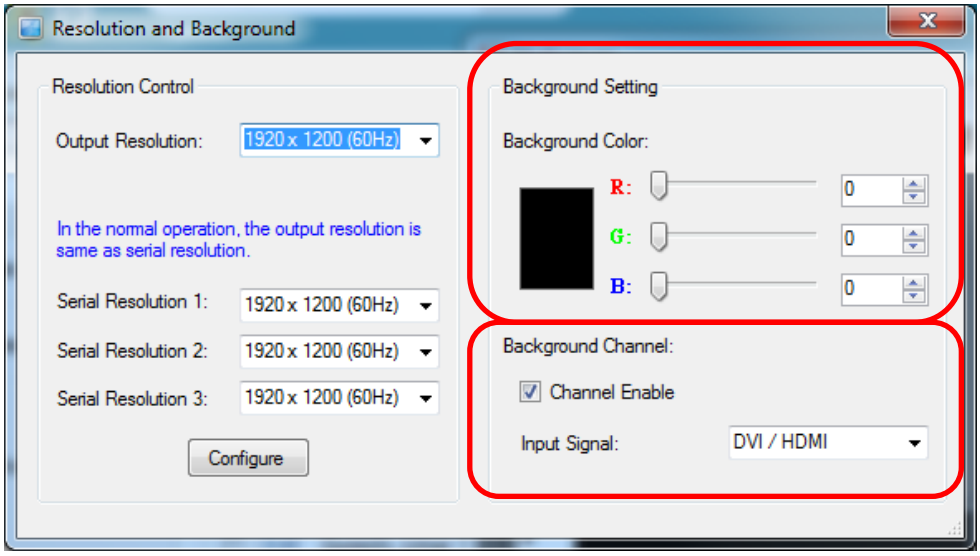
Supported Mode	Resolution	Supported Mode	Resolution
HDTV 720p	1280x720 @ 60Hz	VESA	1280x768 @ 60Hz
HDTV 1080p	1920x1080 @ 60Hz	VESA	1366x768 @ 60Hz
VESA	800x600 @ 60Hz	VESA	1400x1050 @ 60Hz
VESA	1024x768 @ 60Hz	VESA	1600x1200 @ 60Hz
VESA	1280x1024 @ 60Hz	VESA	1920x1200 @ 60Hz

3 **Background Color**

Clicking on this button will show the color dialog for background color adjustment.

4 Background Setting

MPV-104 offers the video background to make this advanced unit actually working like 5 channel video mixer! The default background video must work as full screen! Users can choose between color and video background through the following control window. Click on this button will show the dialog for output resolution, background color and background channel setting.

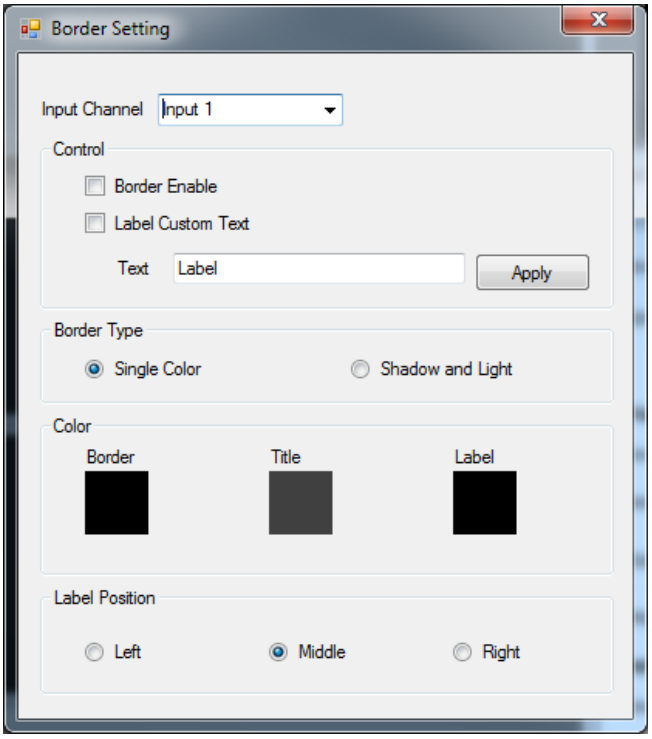


We recommend not changing Serial Resolutions.

Only INPUT 4 can be used as "Background Channel"

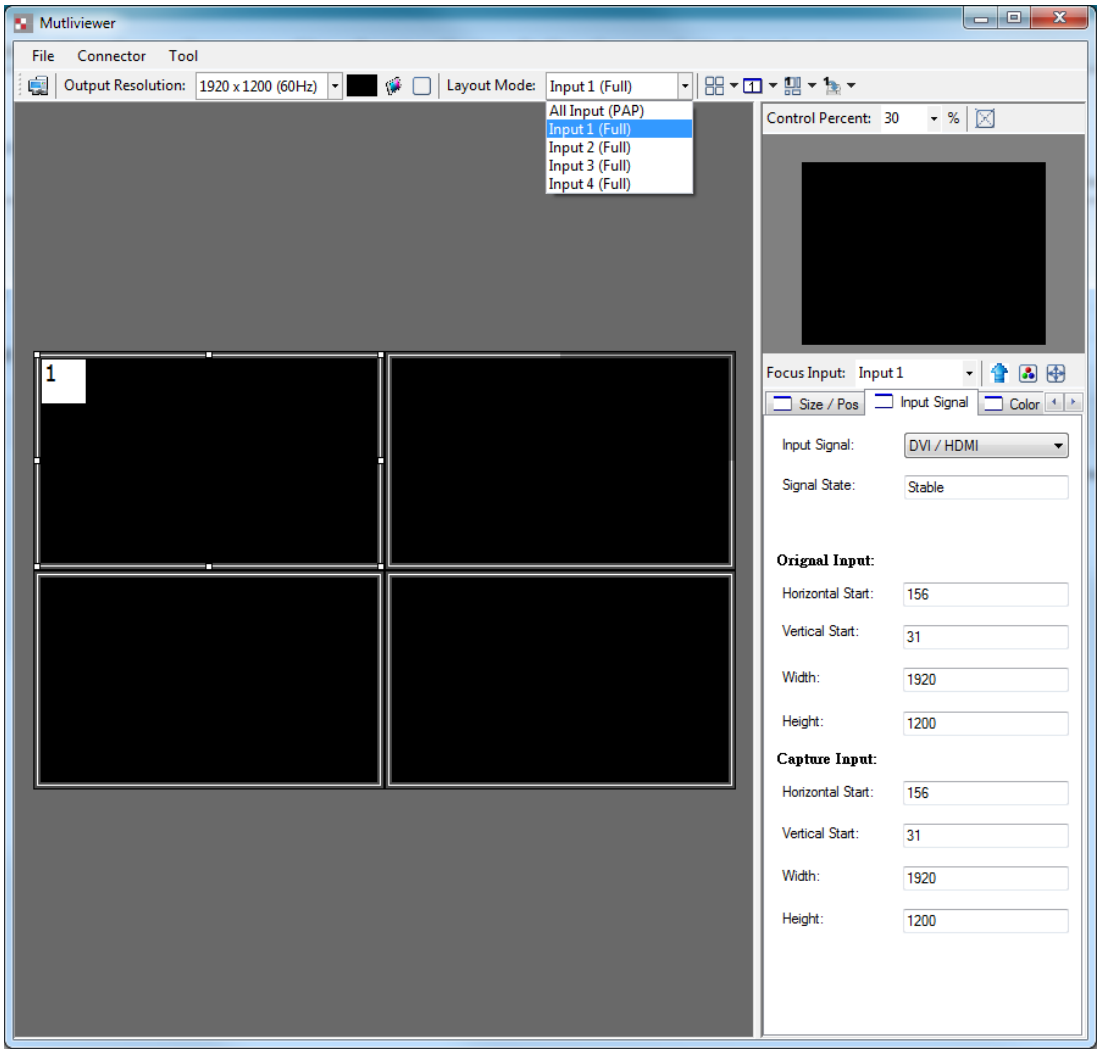
5 Border Settings

Allows you to enable Border and enter Custom Text for Labels each Input Source.



6 Display / Layout Mode

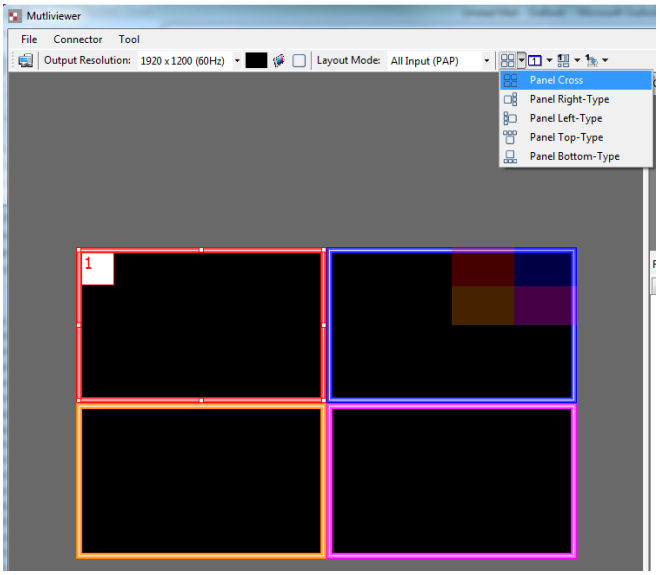
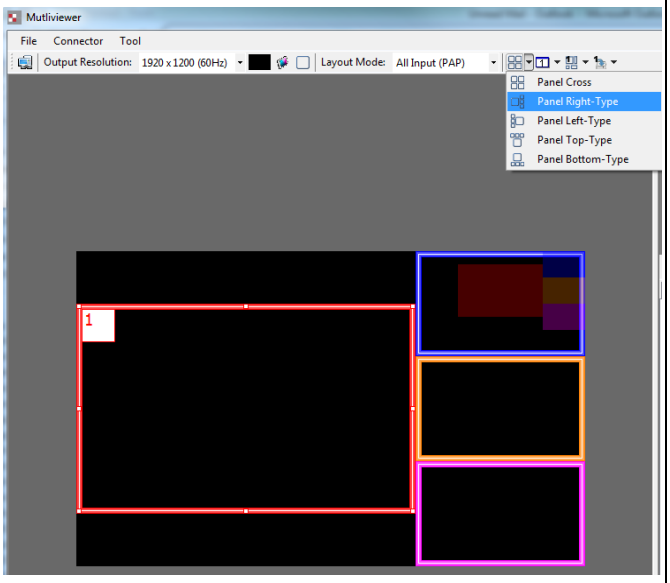
Set signal channel full screen or all channel Notice that the input sources will not be changed in Software.

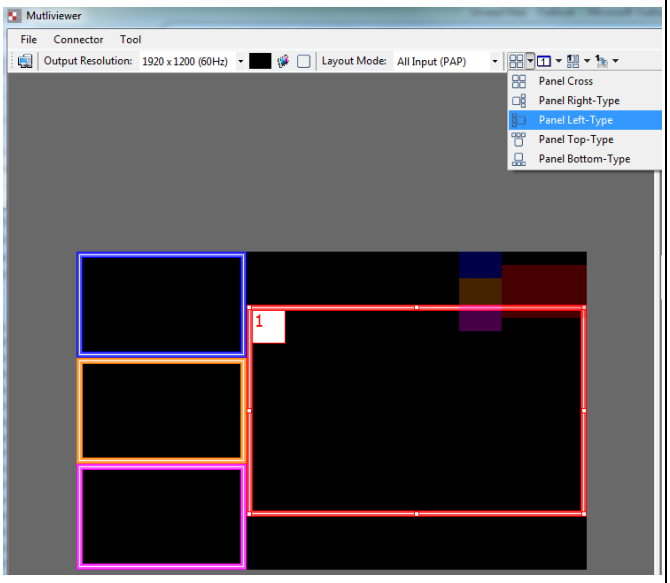
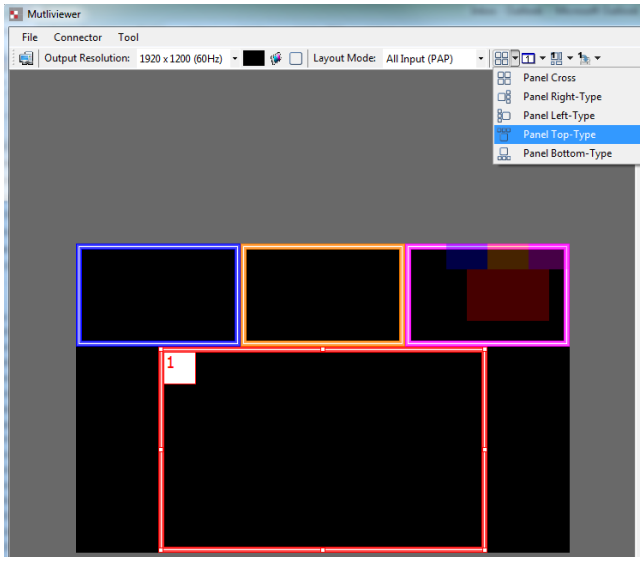
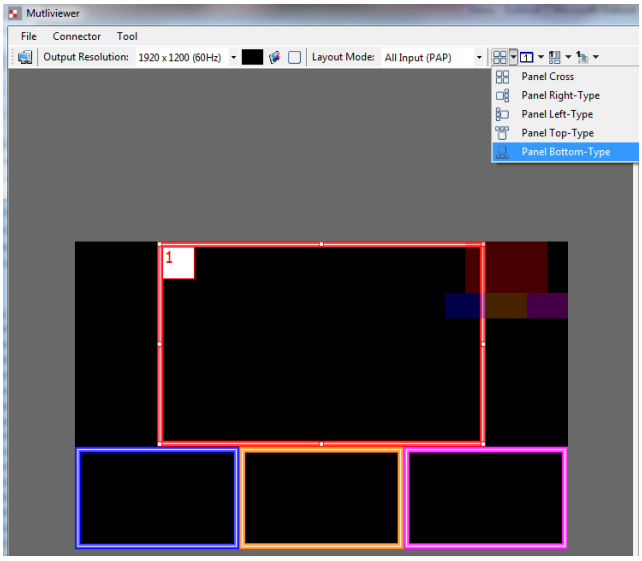


Default Layouts

There are 5 pre-configured layouts available from Control Software, IR Remote Control or Front Panel Buttons.

- Panel Cross
- Panel Right – Type
- Panel Left – Type
- Panel Top – Type
- Panel Bottom - Type

Panel Cross	
Panel Right – Type	

Panel Left – Type	
Panel Top – Type	
Panel Bottom – Type	

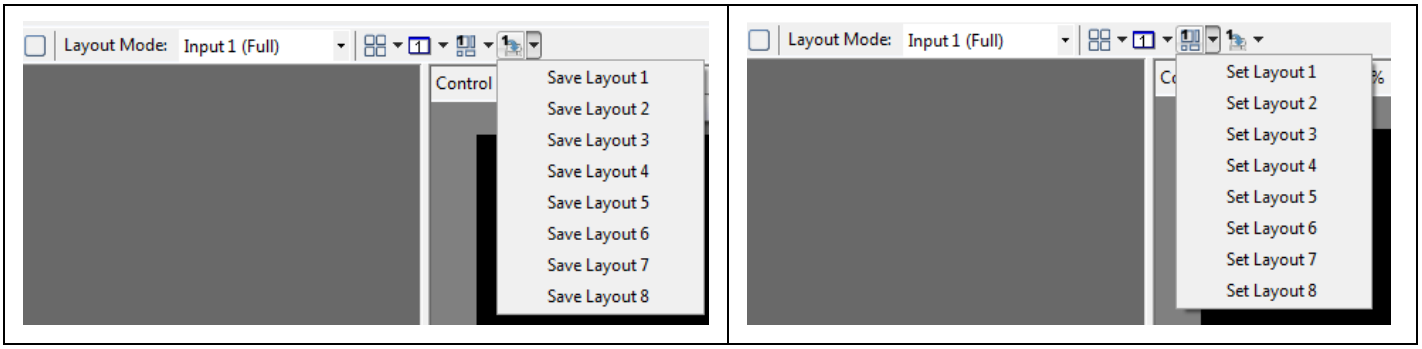
Input Signal which is selected at "Focus Input" will be displayed as Main Video Sources.

Focus Input

Select which Input Source should stay in focus when “Layouts” are selected

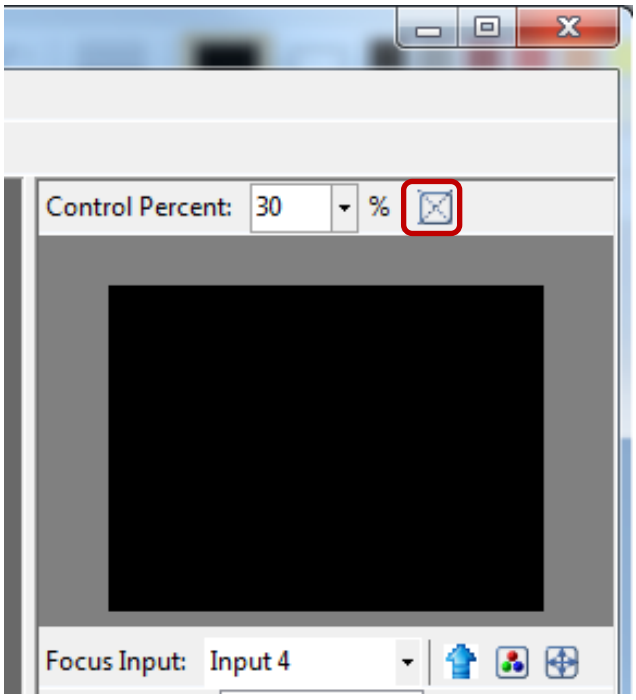
Save and Set Custom Layouts

Save up to 8 Custom Layouts and Set them using Control Software, Front Panel or IR Remote Control.



7 **Layout Control Size**

Set layout control size in Software by percent.



If you enable Fixed Stretch, Aspect Ratios are kept with each Input layout is changed.

8 **Layout Control**

Create different Layouts by Drag and Drop. You can use “Fixed Aspect Ratio” as described above to retain Aspect Ratio of source image.

9 **Preview Window**

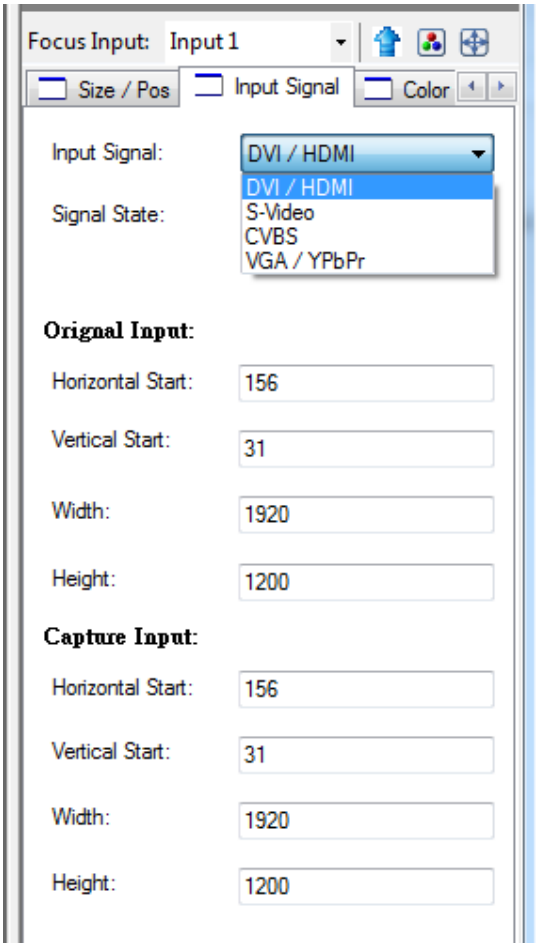
Shows preview Window of Layouts

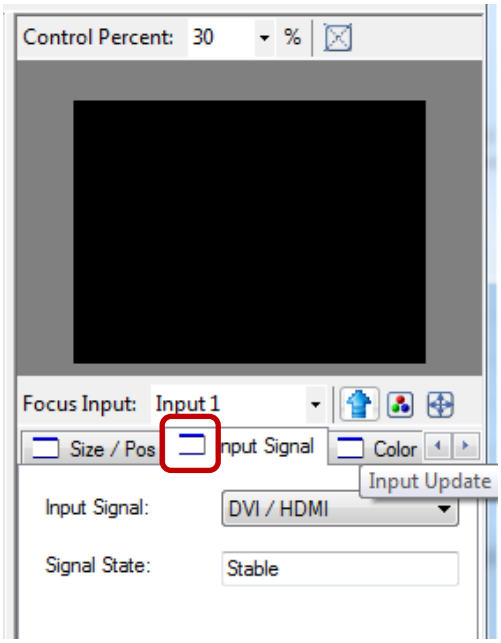
10 **Input Channel Selection and Customization**

In this section you can Select Input Channel, Input Signal, Channel Window Visible, Blend Settings, Custom Height, Custom Width, Color Brightness, Contrast, Saturation, Hue, Red, Green, Blue, Color Balance and Auto Configuration.

[Input Selection]

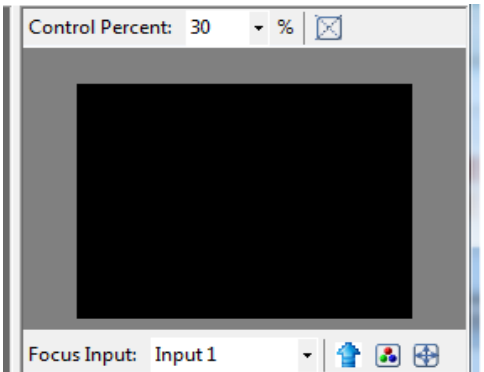
- Select “Focus Input” from drop down menu or by Clicking on Main Layout Window.
- Click on “Input Signal”.
- Select Correct “Input Signal” from drop down menu.
- Once right Input Signal is selected, click on UP ARROW (Input Update) beside Focus Input to update it on system memory.



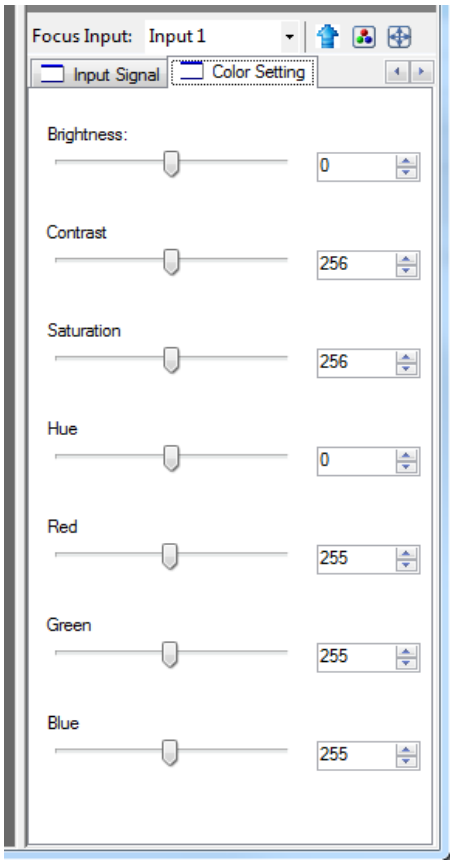


[Size and Position]

Select on “Size / Pos”



- Channel Windows Visible: You may uncheck “Channel Window Visible” if you decide to not show this Windows on screen
- Blend: Change the value of Blending from 100% to 0%. This will allow you to overlay an Input Source on other.
- Custom Height and Width: If you have specific requirement for Input Layout, you may adjust them here.

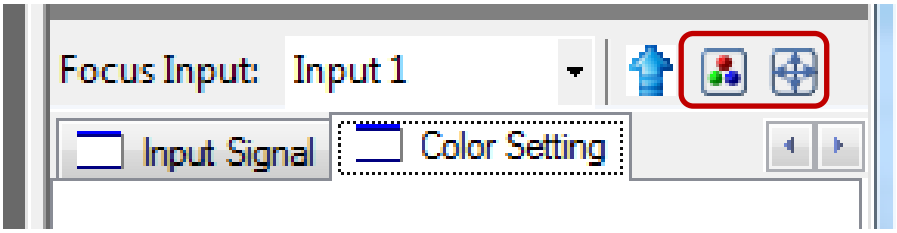


[Color Setting]

Various options to change Brightness, Contrast, Saturation, Hue, Red, Green and Blue are available on each "Input Source"

[Color Balance and Auto Configure]

You may adjust Color Balance and Auto Configure them by selecting these options



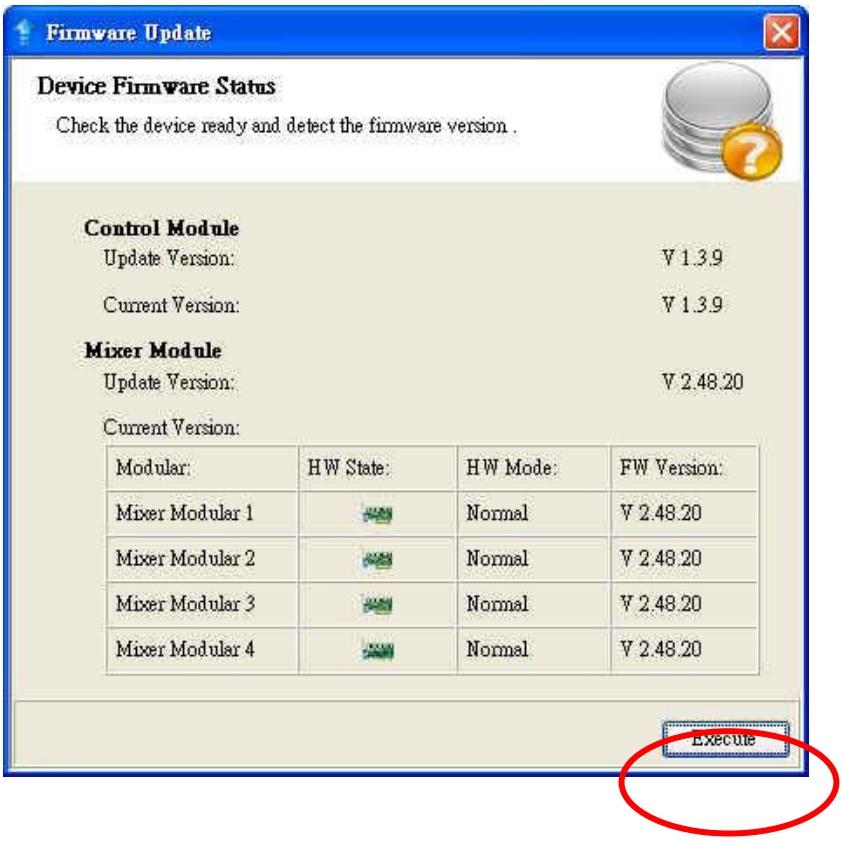
SOFTWARE CONFIGURATION

Follow these steps to select right Output Resolution and Input Signal

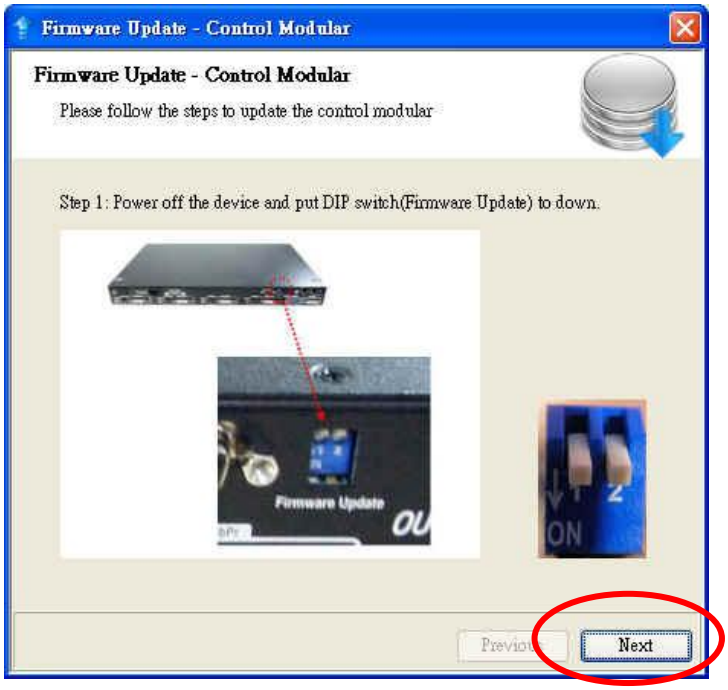
- Once RS232 communication is setup properly, you should select Optimal "OUTPUT Resolution" supported by your Display (TV or Monitor)
- Select correct "Input Signal" for each Input.
  - ➢ After Selecting right Input Signal, ensure to Click on "Input Update"
- Repeat above steps for each Input you have connected
- Select Layout Mode
- Select "Default Layouts" or create your own by dragging dropping

THE FIRMWARE UPDATE PROCESS

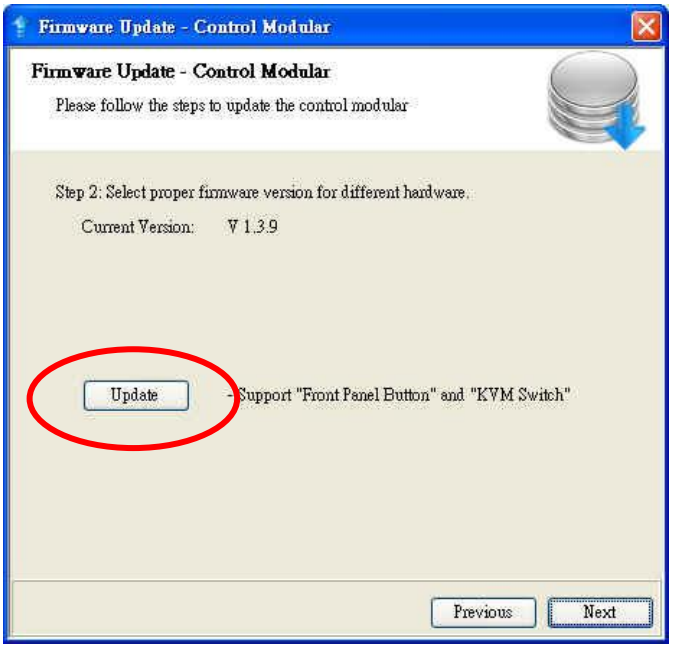
If your firmware is not newest, the control will display the dialog after link the device.
Please “Execute” botton to firmware update



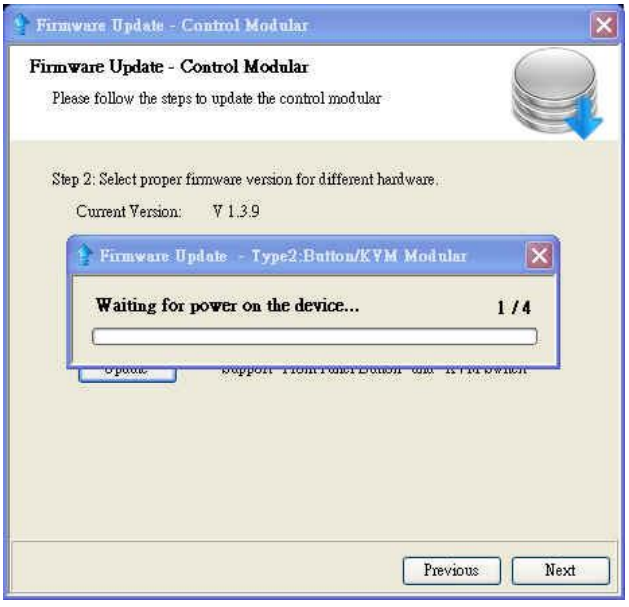
Control Mdoule Update: Please follow the step to update the Control Module

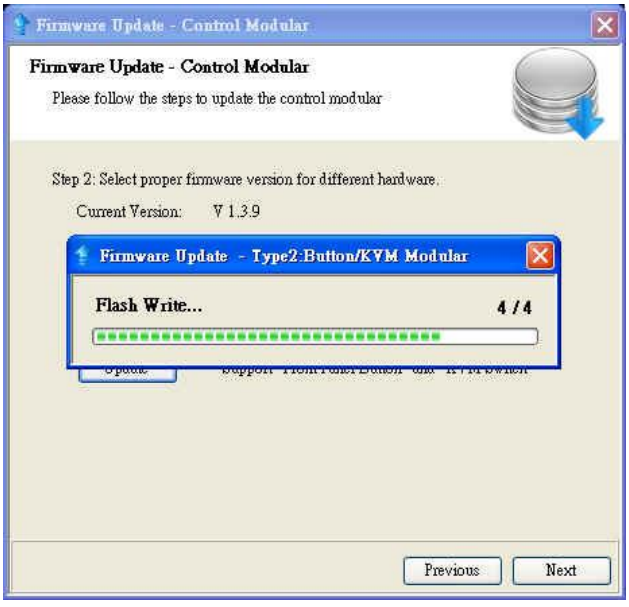


Please click the “Update” button to update Contorl Module

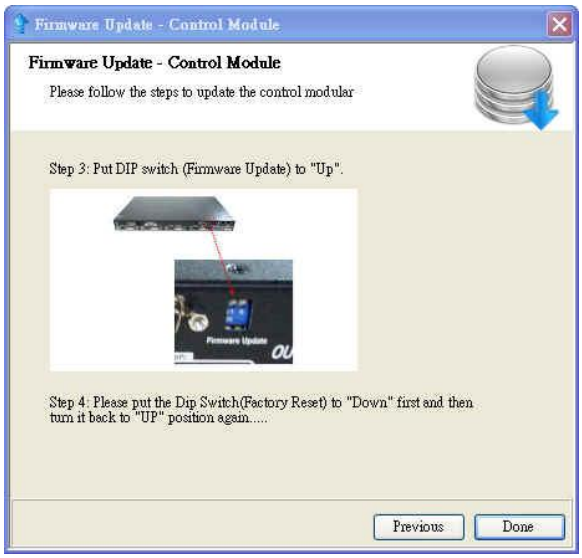


The process bar will run after the device power cycle.If it is not working, please check the DIP switch is correct(In the step 1)

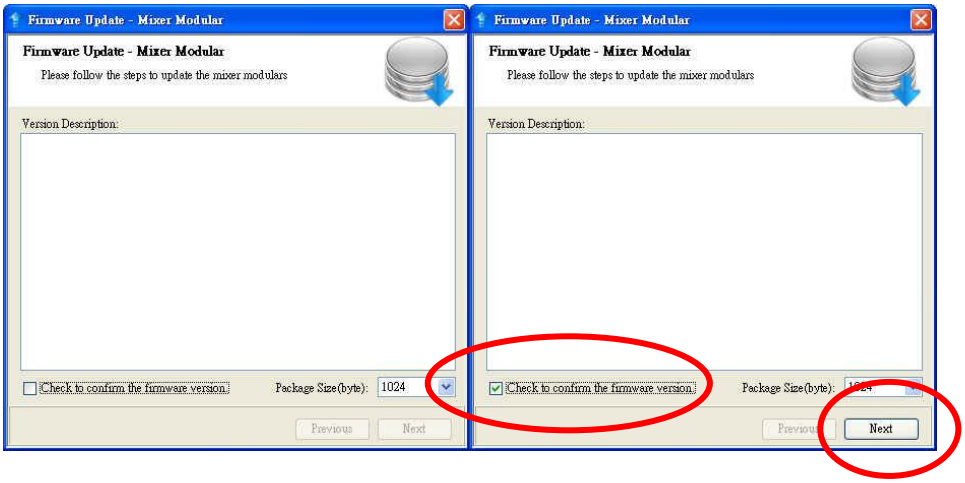




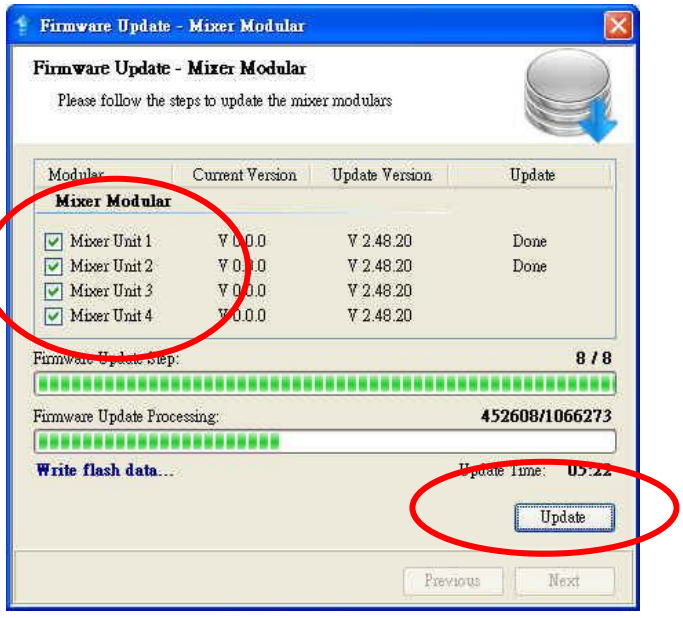
Please make sure the DIP Switch is feedback to right state.



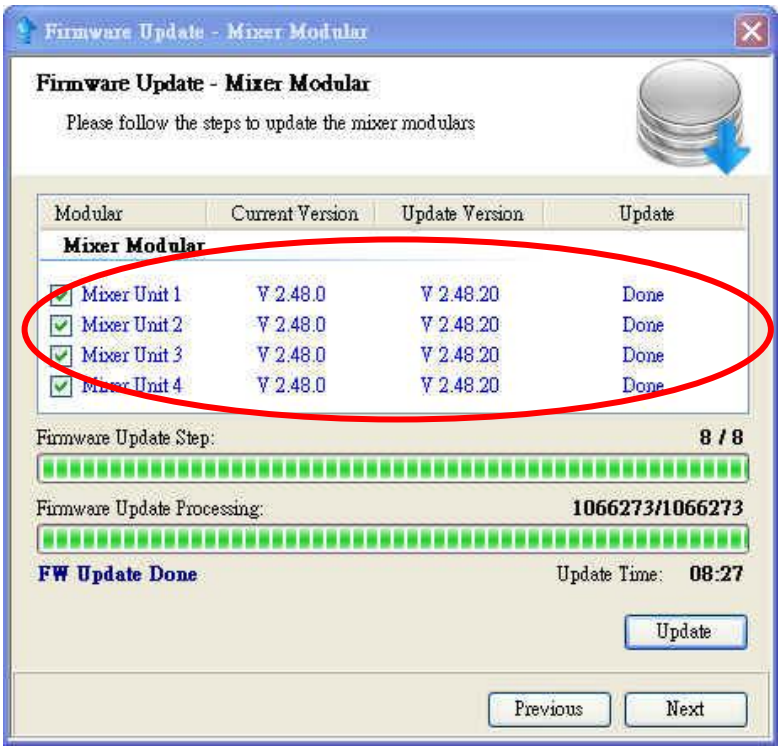
Please check the check box than click the “Next” button to update Mixer Module



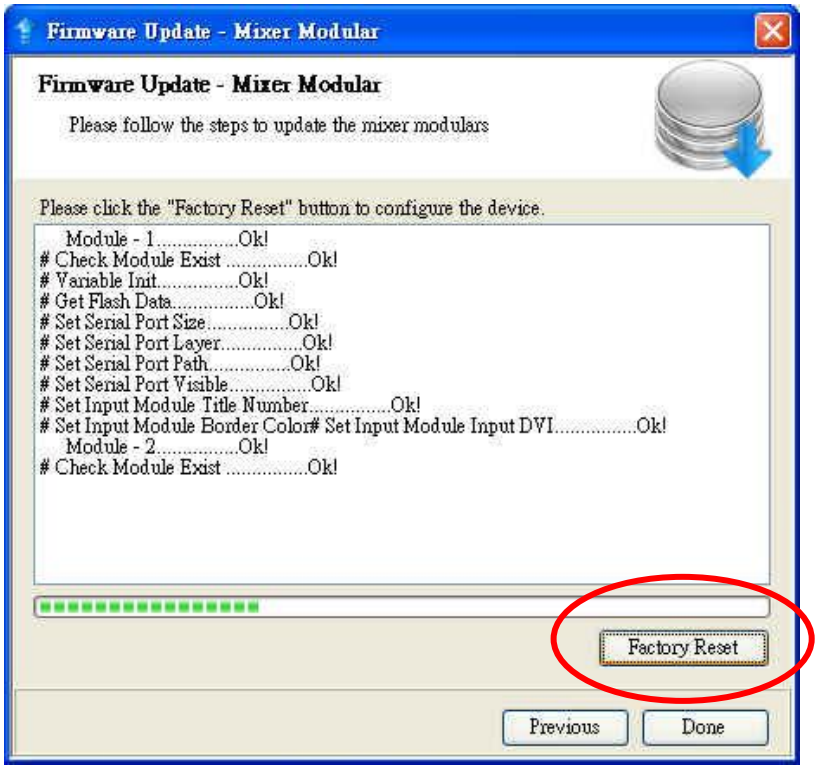
Select the modules that you want update mixer units, than click “Update” button to update Mixer Module.



When the update is finish, please check the update state is “Done”. Click the “Next” button



Click “Factory Reset” to configure the device to correct state.



TROUBLESHOOTING

Problem	Recommendations
No power	✓ Check if you correctly and firmly plug AC power core into AV-GM08K3-S1PF ✓ If you are recovering from power outage, accidentally unplug the power core 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 AV-GM08K3-S1PF 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) ✓ Make sure video sources are accurately selected to the right channels.
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	✓ Use color balance or auto configuration . Auto color configuration only works at VGA and component inputs.
No Video after Factory Hardware and Software Reset	✓ Always perform a hard power reset from the back of the unit using the power switch on back right. ✓ In the configuration software after the factory reset navigate to: ➢ Advance setting button ➢ Ensure the correct COM Port is enabled ➢ Wait until Green check mark and Device Ready! is complete

	➢ Proceed to “Device Setting/Testing” “Execute Selector” ➢ Select “Modular Configure” then Press Execute Button

The SELLER warrants the **AV-GM08K3-S1K Professional Quad-View Video Processor with Keyboard & Mouse Control** to be free from defects in the material and workmanship for 3 years from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 3 years 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 AV-GM08K3-S1K features and specifications is subject to change without further notice.

Support

For more info or tech support

http://www.siig.com/support

April, 2018

[DVI-x / YPbPr-x / VGA-x (x = 1~4)] Socket

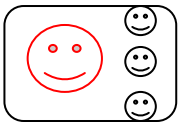
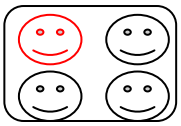
Supported Mode	Resolution
NTSC/480I/525I	720x240 @60Hz
PAL/576I/625I	720x288 @50Hz
480P/525P	720x483 @60Hz
480P (16:9)	960x483 @60Hz
576P/625P	720x756 @50Hz
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080i	1920x1080 @50Hz
(HDTV) 1080i	1920x1080 @60Hz
(HDTV) 1080p	1920x1080 @30Hz
VESA	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 @60Hz
(HDTV) 1080p	1920x1080 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1280x1024 @60Hz
VESA	1280x768 @60Hz
VESA	1400x1050 @60Hz
VESA	1400x1050 @50Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @60Hz

Default display modes for KVM hot key control

		
Full	Quad1	Quad2

Red Icon implies the main display area.

Key Combination[1]	Function Description
Ctrl + Alt + Shift + 1	Keyboard & mouse control granted to computer #1
Ctrl + Alt + Shift + 2	Keyboard & mouse control granted to computer #2
Ctrl + Alt + Shift + 3	Keyboard & mouse control granted to computer #3
Ctrl + Alt + Shift + 4	Keyboard & mouse control granted to computer #4
Ctrl + Alt + Shift + Q	Switch Video #1 to the main display area
Ctrl + Alt + Shift + W	Switch Video #2 to the main display area
Ctrl + Alt + Shift + E	Switch Video #3 to the main display area
Ctrl + Alt + Shift + R	Switch Video #4 to the main display area
Ctrl + Alt + Shift + 9	switching Default Layout
Ctrl + Alt + Shift + 0	switching Default Layout
Ctrl + Alt + Shift + F1	Customized Quad1[1]
Ctrl + Alt + Shift + F2	Customized Quad1[2]
Ctrl + Alt + Shift + F3	Customized Quad1[3]
Ctrl + Alt + Shift + F4	Customized Quad1[4]
Ctrl + Alt + Shift + F5	Customized Quad1[5]

1. *Hotkey definitions are based on IBM PS/2 compatible keyboard and the Ctrl, Alt, and Shift keys are*

on the LEFT side of the keyboard.

2. *Switching video source to the main display area will bring AV-GM08K3-S1K back to one of the video default layouts as shown above.*
3. *While the control software is adjusting the video layout, the keyboard and mouse control will be off.*
4. *User can define Quad3 through the software.*