

Dual Screen Video Processor

User's Guide



Model
DVI-SPLITPRO-2BB



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Section 1: Getting Started

1.1 Important Safeguards

Please read all of these 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.

1.2 Safety Instructions

- Do not dismantle the housing or modify the module.
- Dismantling the housing or modifying the module may result in electrical shock or burn.
- 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. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Have the module checked by a qualified service engineer before using it again.

1.3 Regulatory Notices Federal Communications Commission (FCC)

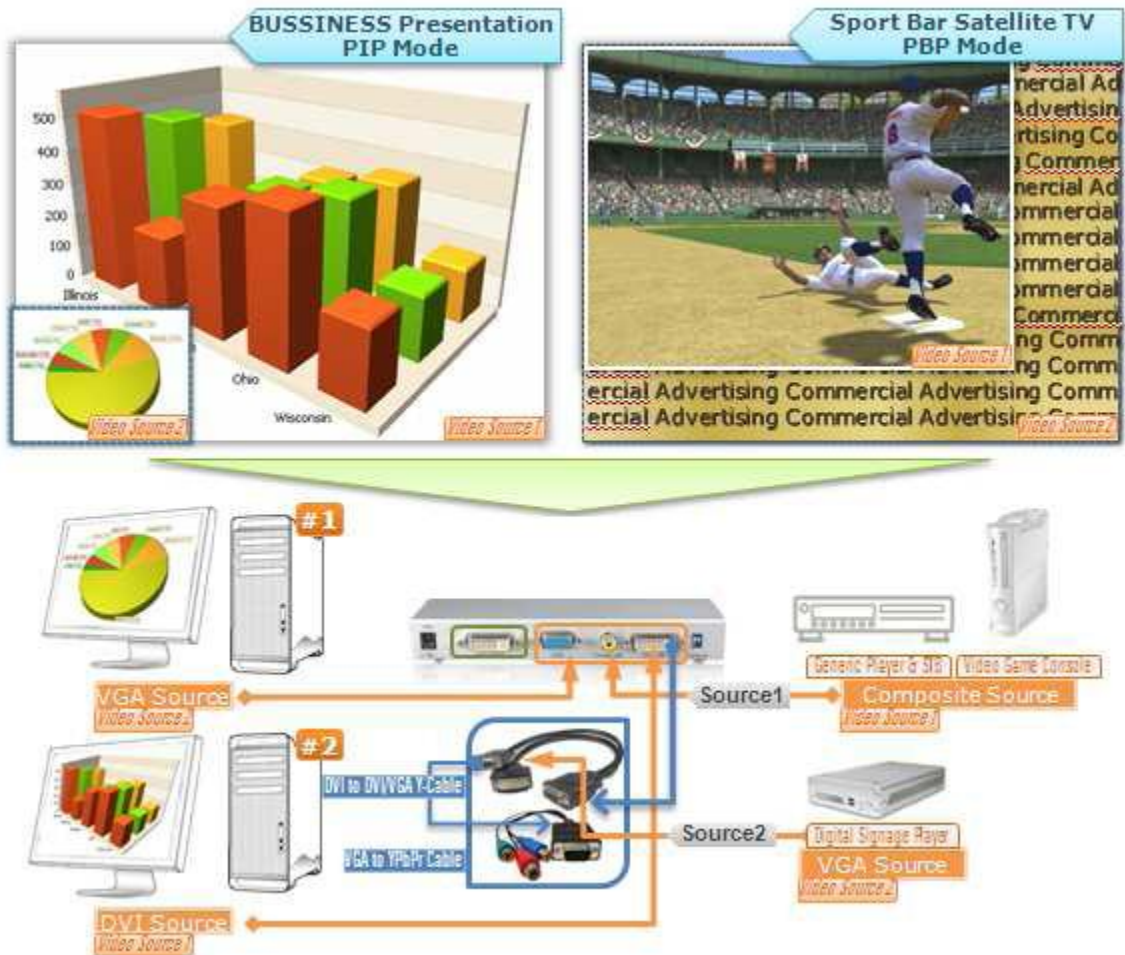
This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

1.4 Introduction

The **DVI-SPLITPRO-2B Dual Screen Video Processor** 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 4 video inputs, of which 2 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.

The embedded scalar 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.



1.5 Features

- Three graphic (DVI / VGA) and two video (Component / Composite) Inputs, from 640x480 to 1920x1200,
- Interlaced or progressive.
- Dual outputs (DVI / VGA), 640x480 to 1920x1200.
- PIP, PAB, Full screen modes and adjustable size& position through software.
- Titles, borders and colored backgrounds.
- Resize, position, flip, zoom& pan and blend output video.
- Can be cascaded to obtain more images.
- 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.
- IR control and software control through RS-232.
- Portable size.
- Automatic power-saving mode.

1.6 Package Contents

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

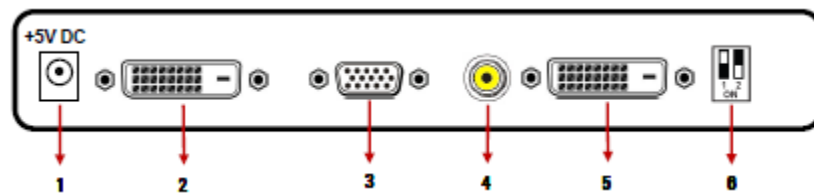
- | | |
|-----------------------------------|-----|
| - DVI-SPLITPRO-2B | x 1 |
| - DVI – DVI & VGA breakout Cable | x 1 |
| - VGA to Component breakout Cable | x 1 |
| - VGA to DVI Adapter | x 1 |
| - IR Remote Control | x 1 |
| - Software CD | x 1 |
| - AC Power Supply | x 1 |
| - User's Manual | x 1 |

1.7 Device Features

1.6.1 Inputs and Outputs

The Avenview DVI-SPLITPRO-2B has 4 inputs and accepts both graphics and video signals, which come from computers (DVI or VGA) and NTSC/PAL video sources. You can pick up 2 of the 4 inputs and then display 2 of them simultaneously on the same screen. Figure 2 shows the rear panel connectors of a DVI-SPLITPRO-2B and Table 1 illustrates how you can connect video devices and display to the DVI-SPLITPRO-2B.

Rear Panel



To reset the DVI-SPLITPRO-2B to factory default settings: Turn on the DVI-SPLITPRO-2B then switch both DIP Switches simultaneously up and down to reset the unit to factory default settings

1.6.2 I/O Connectors

Connectors		Video Source
Input Connectors	DVI-IN	DVI
		VGA (VGA to DVI Adapter)
		Component (YPbPr) (DVI to VGA Adapter and VGA to Component Adapter)
		1 x DVI 1 x VGA (DVI to DVI/VGA Y Cable)
		1 x DVI 1 x Component (DVI to DVI/VGA Y Cable and VGA to Component Adapter)
	VGA	VGA
	Composite	Composite with a RCA Cable
Output Connectors	DVI-I OUT	Display
		DVI Display
		VGA Display (DVI to VGA Adapter)
		1 x DVI Display 1 x VGA Display (DVI to DVI/VGA Y Cable)

1.8 Before Installation

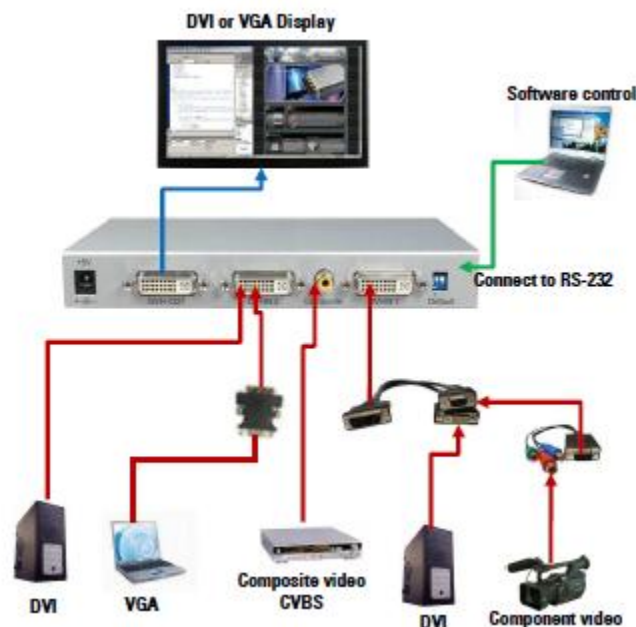
- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the AC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the optical cables. It can cause malfunction.
- To prevent fire or shock hazards, do not expose this device to rain or moisture.
- Do not immediately use after moving from low temperature to high temperature as this causes condensation



Section 2: Installation

Follow these instructions for installation of DVI-SPLITPRO-2B:

1. Ensure that DVI-SPLITPRO-2B and all other source devices are turned off
2. Connect a monitor, a projector or other displays that comes with DVI and/or VGA inputs by using 1 male-to-male DVI (VGA) cable to DVI-SPLITPRO-2B DVI output (you can connect 2 displays equipped with DVI and VGA respectively by a DVI to DVI/VGA breakout cable)
3. Plug in DVI to DVI/VGA breakout cable (DDVY01) to DVI-IN and plug in VGA to component breakout cable to the VGA connector of the breakout cable.
4. Connect a monitor, projector, other displays that come with DVI / VGA inputs by using 1 male – male DVI (VGA) cable to DVI-SPLITPRO-2B DVI output. (you can connect 2 displays equipped with DVI and VGA respectively by DVI – DVI/VGA breakout cable)
5. Connect a device equipped with DVI output (such as PC) to the DVI connector of the breakout cable.
6. Connect a device equipped with component video output (YPbPr such as DVD player or camera) to the 3-RCA jack.
7. Connect a device equipped with VGA output (such as laptop) to the VGA connector of of DVI-SPLITPRO-2B.




8. Connect a device equipped with composite video output to composite input of the DVI-SPLITPRO-2B.
9. Connect your computer with the DVI-SPLITPRO-2B by a 9-pin RS-232 cable and then install the software.

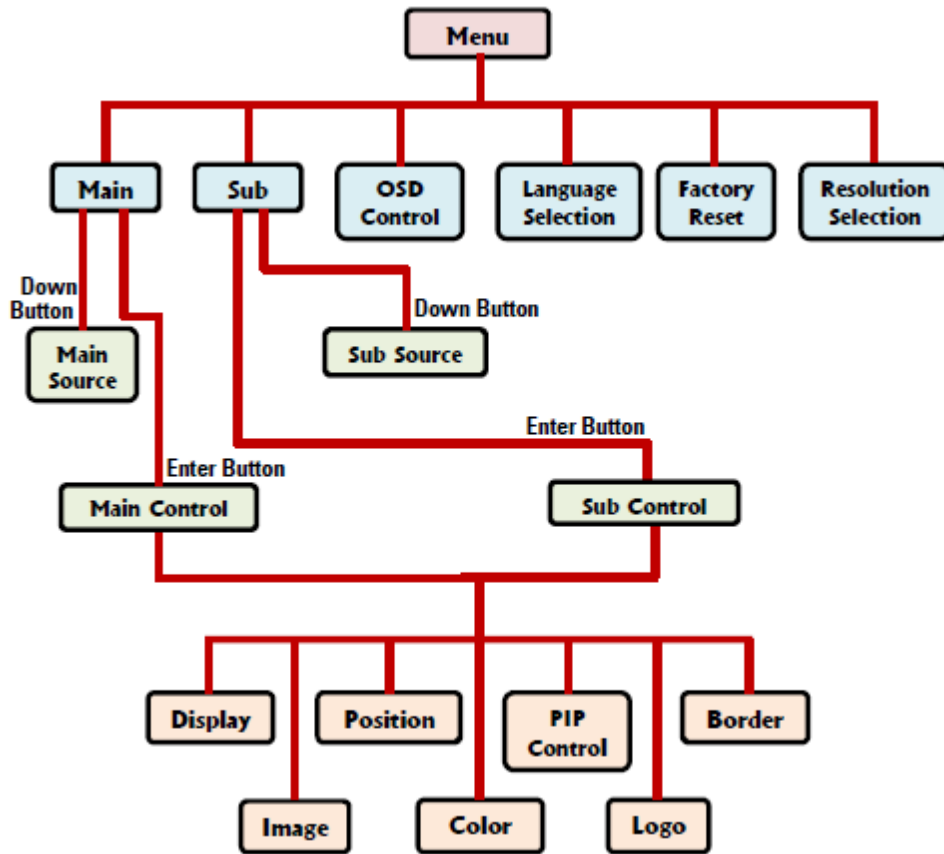
10. Plug in power adapter cable into 5V DC power jack.
11. Switch on all devices connected and then switch on the video processor and then press “menu” to display OSD menu.
12. Press down arrow key dropping down sub-menu to select the first channel (Main Channel) video/graphic source.
13. Once the Main Channel has a video selected, press “exit” key to exit the sub-menu, and then move right to the next item of OSD menu, which allows you to select the second channel (Sub Channel).
14. For detailed IR remote control operation, please refer to the On Screen Display menu and IR Remote Control section.

2.1 IR Remote Control

DVI-SPLITPRO-2B ships with a compact remote control that allows for direct access to most commands used to control the video processor.

1. Power	Power ON/OFF the device	
2. PIP Border	Display the border of small image (under PIP mode)	
3. UP Button	Move to the upper titles	
4. Source	Press to select a source for main channel	
5. Reset	Factory Reset	
6. Right Button	Move to the right titles	
7. Menu	Display OSD Menu	
8. Left Button	Move to the left titles	
9. Logo	Display Logo	
10. Exit	Move back to previous option or exit OSD Menu	
11. Down Button	Move to the lower titles	
12. Enter	Press to drop down sub-menus or confirm the selection	
13. Blank	Blank out the screen	
14. Color	Automatically configure the main channel color	
15. Auto	Automatically configure the man channel position	
16. V Flip	Flip vertically	
17. H Flip	Flip Horizontally	
18. SWAP	Swap between main channel and sub-channel (only works in PIP or PAP mode)	
19. PIP	Changes mode: Full Screen, PIP and PAP	
20. Sub Pause	Freeze sub-channel	
21. Main Pause	Freeze main channel	

2.2 On Screen Display Menu



Main Source:	Select an input source for the main channel (VGA / YPbPr, DVI, Composite, VGA)	
Main Control:		
Display	Brightness (Slider)	Hue (Slider)
	Contrast (Slider)	Flesh-tone (Button: Off, Weak, Soft, Strong)
	Saturation (Slider)	
Image	Scaling (1:1, Fill, Aspect, Panorama)	Angle Filtering (Button: Off, On)
	Adaptive De-interlacing (Button: Off, Level 1, Level 2, Level 3)	Film Mode Detect (Button: Off, On)
	Noise Reduction (Button: Off, Low, Med, High)	Sharpness (Slider)
Position	Zoom(Button: In, Out)	Zoom Vertical Pan (Button: Down, Up)
	Zoom Horizontal Pan (Button: Left, Right)	Vertical (Slider)
	Horizontal (Slider)	
Color	sRGB (Button: Off, On Cl.BA)	Red (Slider)
	Gamma Correction (Button: Off, 2.2, 2.4)	Green (Slider)
	Color Temperature (Button: User, 6500K, 9300K)	Blue (Slider)
PIP Control	PIP Mode (Off, Single, PAP)	Vertical (Slider)
	PIP Size (Small, Medium, Large)	Horizontal (Slider)
Logo	Blend (Slider)	
	(Off, On)	
Border	(Off, On)	
	Red (Slider)	Green (Slider)
	Blue (Slider)	Width (Slider)
Sub Source:	Select an input source for sub-channel (VGA/component, DVI, composite, VGA)	
Sub Control:	The same as Main Control	
OSD Control:	Vertical (Slider)	Horizontal (Slider)
	Time out (Slider)	OSD Zoom (On, Off)
	Blend (Slider)	
Language Selection:	English and Traditional Chinese	
Factory Reset:	Reset the device to default	
Resolution Selection:	Press Down Button to select an output resolution and then press enter to confirm that selection	
	800×600 @60Hz, 1280×768 @60Hz, 1440×900 @60Hz, 1920×1080 @50Hz	
	1024×768 @60Hz, 1280×1024 @50Hz, 1400×1050 @50Hz, 1920×1080 @60Hz	
	1152×864 @75Hz, 1280×1024 @60Hz, 1400×1050 @60Hz, 1920×1200 @50Hz	
	1280×720 @50Hz, 1366×768 @60Hz, 1600×1200 @60Hz, 1920×1200 @60Hz	
	1280×720 @60Hz	

2.3 System Requirements

1. The DVI-SPLITPRO-2B provides a software control program which runs under Microsoft Windows 98, 2000, XP 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 DVI-SPLITPRO-2B.
3. The DVI-SPLITPRO-2B provides software control. To make sure all information shown in the software is synchronized with those in the device, please click "Update" button to acquire the latest data from the DVI-SPLITPRO-2B after you press any key on the remote control.

2.4 Software Connection

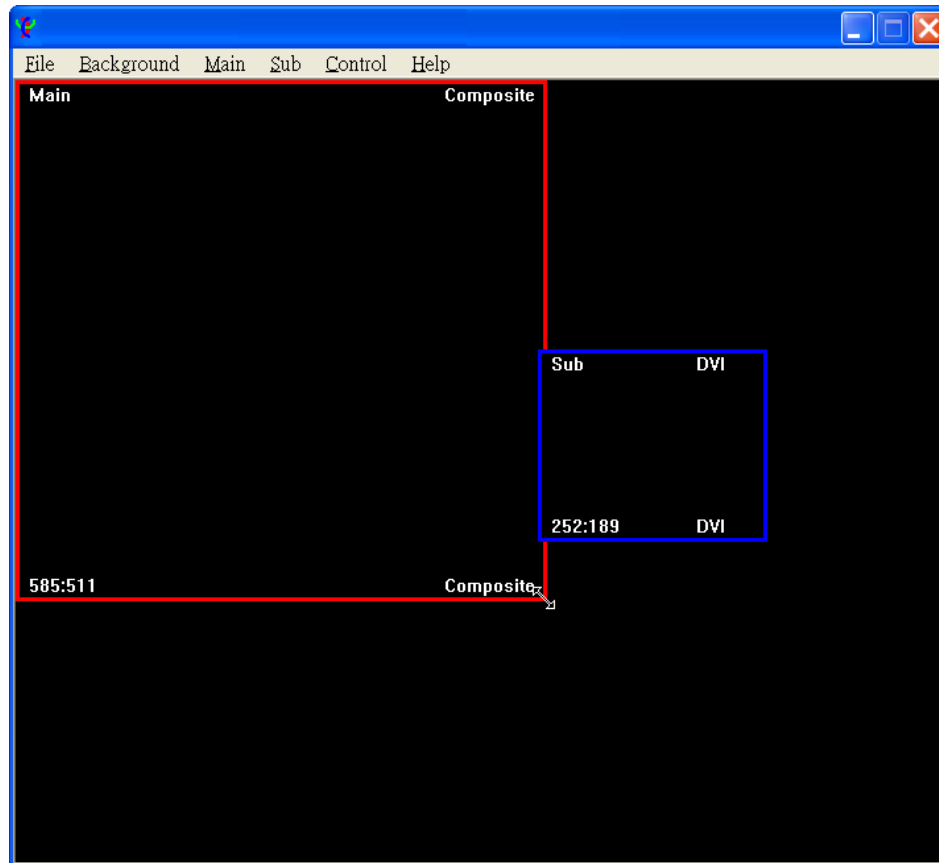
1. Power up the DVI-SPLITPRO-2B and you can see both Red and Green LEDs on the front panel blink. Ensure that Serial RS232 connection is secure.
2. The first step after running the software is to automatically detect if the device responses correctly through RS-232 port. The process takes 5-15 seconds. If the device is not connected, a warning window will show up. First of all, choose the correct COM port from the Com Port selection list. Then, click on the linkage button to open the COM port. If the specified COM port is not available, the "Device is not ready. Do you want to try again?" error message will pop up. Please check the availability of COM Port. After the COM port is accurately established, please click on status update button.



If "device is not ready" error pops up then:

- *Ensure that DVI-SPLITPRO-2B is powered on.*
- *Please ensure that serial cable (RS232) is connected properly and available serial port is free to be used by DVI-SPLITPRO-2B*

3. If the serial connection is established, you will see a Windows as shown below:



2.5 Software Operation

The software has following menu options available:

File	
Connect	Synchronizes the status of the DVI-SPLITPRO-2B with that of the software, especially after IR commands sent.
Save Settings	Save current user preferred settings such as the positions and sizes of the videos, the width or color of border etc into your favorite setting files.
Load Settings	Load the favorite settings from the previously saved file
IR Control	Enable or Disable IR Remote Control function
Auto Sleep	Enable or Disable auto sleep function if there is no video signal detected in the main channel
Device ID	Define Device ID of each DVI-SPLITPRO-2B especially when multiple devices are cascaded
Factor Reset	Restore all system settings to factory default
Exit	Quit the software
Background	
Resolution	Change the output resolution

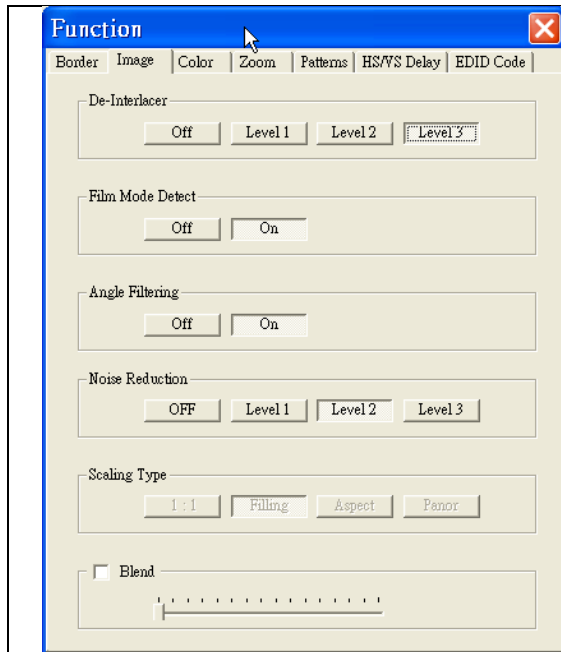
Layout	The preset layout for main & sub channels
H-Flip	Horizontally flip the output video
V-Flip	Vertically flip the output video
SWAP	Swap the main the sub channel
Color	The background color selection
Main	
Input Source	Select a video/graphic input of the main channel
Visible	Display the main channel or not
Border	Display the main channel's border
Label	Display the main channel's label. Users can define the content of the label
Layer	This will make the main channel overlays the sub channel
Pause	Freeze the display of the main channel
Full Screen	Display the main channel full screen
Color Balance	Automatically do the color balance while the main channel's input is from VGA/Component
Auto Config	Automatically do the auto adjustment while the main channel's input is from VGA/Component
Sub	
Input Source	Select a video/graphic input of the sub-channel
Visible	Display the Sub-Channel or not
Border	Display the sub-channel's border
Label	Display the sub-channel's label. Users can define the content of the label
Layer	This will make the sub-channel overlays the main channel
Pause	Freeze the display of the sub-channel

2.5.1 Control-Setting Dialog

Border: Select main or sub channel for further setting

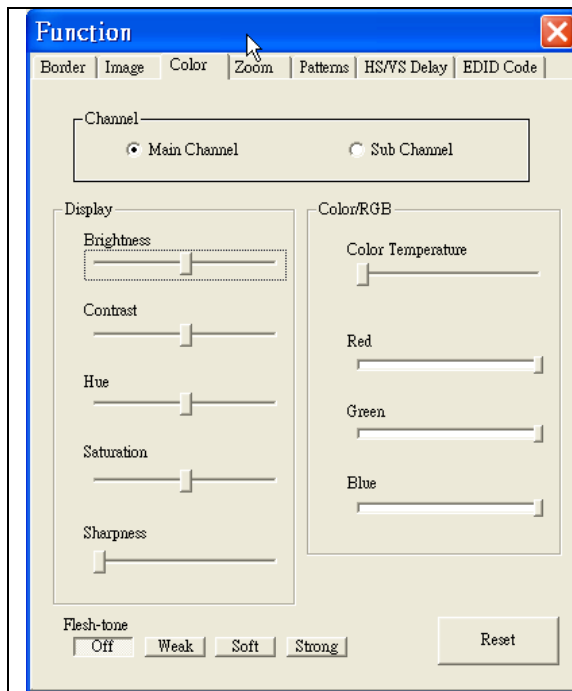
Clear All	Clear all OSD items
Apply	Apply the settings
Border Color	Setup border's color by clicking on "Color Settings"
Border Width	Input border's width
Border Type	The placemat of border has three types: Inside means the added border is fully inside the video. Outside means the added border is completely outside the video and this added border can overlay the other video input. Middle means the border half inside the video and half outside the video
Text Color	Select the color of the label by clicking on "Color Settings"
Text Auto	When selected the label on the screen for each channel will display its corresponding input channel type. When not selected the user can input the desired string to be displayed
Duty Cycle	Enables blinking of OSD borders and labels
Frequency	Select how fast OSD border and labels blink

Image:



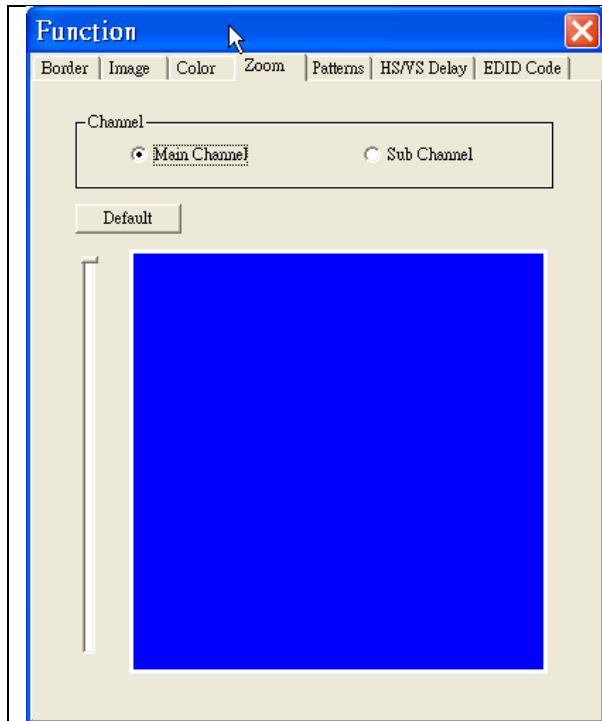
1. Choose the scaling type for the main channel at fully screen display
2. While Blend is selected, users can use the slider to control the control the degree of blending

Color:



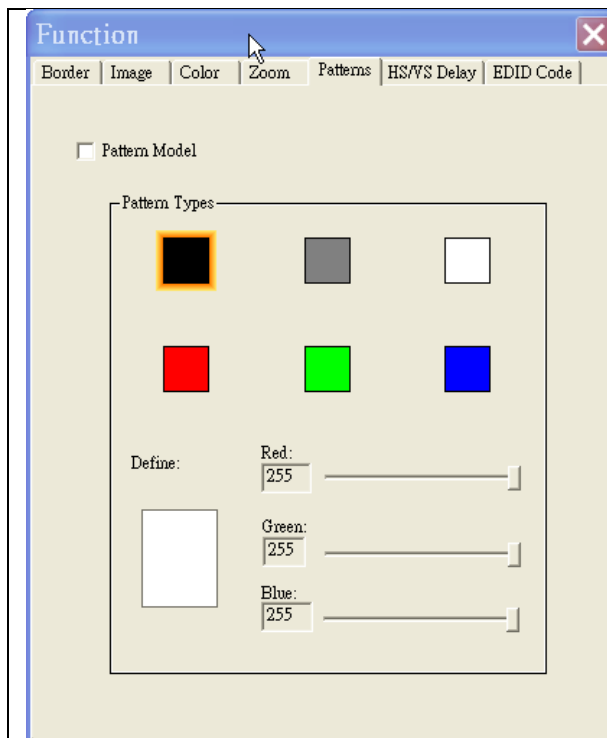
1. Select the main or sub channels
2. Reset: Restore all the setting on this page back to their factory default settings.

Zoom:



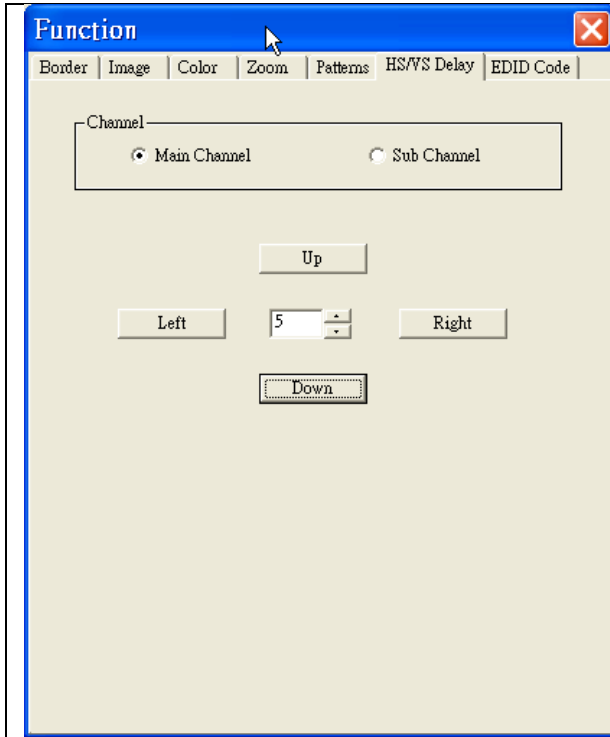
1. Select the main or sub channel
2. Default: Restore the selected channel without zoom effect
3. Slider controls the ratio of zoom.

Pattern:



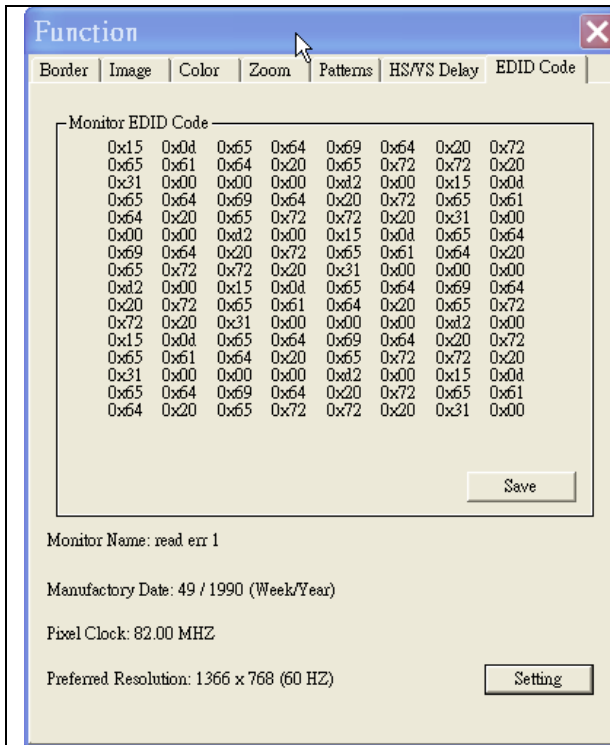
1. While the "Pattern Model" is chosen, the output will display the selected pattern. While unselecting this item, the output display works normally.
2. The organ border indicates which pattern is currently selected. Users can choose one of the provided patterns by moving cursor and clicking at the desired one
3. Users can define the pattern's color by changing Red, Green and Blue values

HS / VS Delay:



1. Select the main or sub channel
2. The fine movement of the selected channel

EDID Code:



1. **Save:** Save the read back EDID Content in PC
2. **Setting:** Automatically setup the output resolution according to the content of EDID

Section 3: Specifications and Supported Resolutions

3.1 Specifications

Model	DVI-SPLITPRO-2B
Description	Dual Screen Video Image Processor
Dual Output Support	Yes (DVI & VGA)
Video Bandwidth	DVI Single Link - 4.95Gbps
	VGA - 165 MHz
	Component - 30 MHz
	Composite – 13.5 MHz
Supported Resolutions	480i / 480p / 720p / 1080i / 1080p (60) / 1920x1200@75 / 1600x1200@60
Audio Support	No
Control	RS232 & IR
Embedded Video Mixer	Yes
Ability to Cascade	Yes
Input TMDS Signal	1.2 Volts (peak – peak)
ESD Protection	Human body model - ± 15kV (air gap discharge) & ±8kV (contact discharge)
Input	2 x VGA (through VGA to DVI Adapter)
	2 x DVI
	1 x Component
	1 x Composite
	1 x RS232
Output	1 x DVI
	1 x VGA
DVI Connector Type	DVI-I (29-Pin female)
VGA Connector Type	HD-15 (15-pin D-sub female)
RS232 Connector	DE-9 (9-pin D-sub female)
RCA Connector	75Ω
RJ45 Connector	WE/SS 8P8C with 2 LED indicators
IR Remote Control	Yes
Dimensions	7.1" x 4" x 0.9" (L x W x H)
Power Supply	5V 4A DC
Power Consumption	10 Watts (max)
Operating Temperature	0~40°C [32~104°F]
Storage Temperature	-20~60°C [-4~140°F]
Relative Humidity	20~90% RH [no condensation]

3.2 Supported Resolutions

The following resolutions are supported by DVI-SPLITPRO-2B

3.2.1 DVI / Component / VGA

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

3.2.2 VGA

Supported Mode	Resolution
VESA	640x480 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1280x1024 @60Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @60Hz

3.2.3 DVI-OUT

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

Section 4: General Troubleshooting

Problem	Possible Solution
No Power	<ul style="list-style-type: none"> • Ensure that DVI-SPLITPRO-2B is plugged in • 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 or Distorted Image	<ul style="list-style-type: none"> • Make sure all cables are in good working condition and properly connected to the DVI-SPLITPRO-2B and displays. • Configure the output video resolution so that it doesn't exceed the native resolution of the display. (in this case, the message of "out of range" is usually showed on your screen)
Poor Quality	<ul style="list-style-type: none"> • 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.
Image Position Shifted	<ul style="list-style-type: none"> • Press "Auto" key on the remote control <p>Auto color configuration only works at VGA and Component inputs</p>
Wrong Color	<ul style="list-style-type: none"> • Press "Color Balance" key for auto configuration. <p>Auto color configuration only works at VGA and Component inputs.</p>



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