User Manual

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Spyder Stereoscopic Option 2 (SSO2)

CHKISTIE®

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- Material Concentration Values Table
  有毒有害物质含量表

Part Name	部件名称	Material Concentration (有毒有害物质或元素)					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr 6+)	多溴联苯 (PBB)	多溴二联苯醚 (PBDE)
Low voltage power supply	低压电源	X	O	O	O	O	O
Standby LVPS	备用低压电源	X	O	O	O	O	O
Switch	开关	X	O	O	O	O	O
Ballast	镇流器	X	O	O	O	O	O
Line filter	滤波器	X	O	O	O	O	O
Ignitor	点火器	X	O	O	O	O	O
Harness/cable	连接电线/缆	X	O	O	O	O	O
Integrated Cinema Processor	集成处理板	X	O	O	O	O	O
Projector Intelligence Board	智能板	X	O	O	O	O	O
Backplane	底板	X	O	X	O	O	O
Internal Motor Control Board	内部电机控制板	X	O	O	O	O	O
Touch Panel Controller	触摸控制屏	X	O	O	O	O	O
Blower/fan	吹风机/风扇	O	O	O	O	O	O
Sensor	传感器	O	O	O	O	O	O
Illumination optics system	照明光学系统	X	O	X	O	O	O
Projection lens	投影镜头	X	O	X	O	O	O
Mechanical enclosure*	机械附件	X	O	O	O	O	O
Lamp	灯泡	X	O	O	O	O	O
Motorized intelligent lens mount (optional)	智能电动镜头架（备选件）	X	O	O	O	O	O

Note:
O: indicates that the concentration value of the particular hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C, is below the stipulated levels in China SJ/T11363-2006.
表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006规定的限量要求以下。

X: indicates that the concentration value of the particular hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C, may be above the stipulated levels in China SJ/T11363-2006.
表示该有毒有害物质至少在该部件的某一均质材料中的含量可能超出SJ/T11363-2006规定的限量要求。

* This part uses metallic alloys, which may contain Lead.
- 因该部件使用金属合金材料，故可能含有铅。

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Contents

Understanding the MirageHD Stereo Mode

How the MirageHD stereo mode works

The MirageHD stereo mode (SSO2) utilizes the frame doubling capability of the Christie MirageHD projector to alleviate input restrictions and PixelSpace consumption involved with traditional active and passive modes used with Spyder.

Interleaved Stereo

Note: The usage of the term 'interleaved' stereo refers to the Spyder mode which is used to process active stereo signals when running the SSO2 / MirageHD stereoscopic mode. The 'interleaved' signal provided to Spyder is a true active stereo signal running at a standard video frame rate. Because 'Interleaved' is a term Specific to Spyder, source devices Source devices input into the Spyder system should be configured as active stereo sources.

Overview

An interleaved stereo video signal consists of a single video connection which interleaves a left-eye and right-eye signal on alternating video frames, and uses a separate sync signal which is used to identify the left and right eye frames. On graphics cards, the sync signal is typically provided by a 3-pin mini-DIN connector (shown in figure 1 below).

Pin	Function
1	+5V DC (secured with 750mA)
2	Ground
3	Stereo Sync
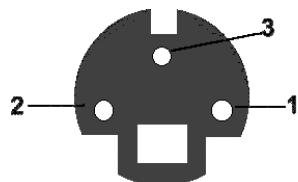
Figure 1: VESA miniDIN-3 connector **Table 1: miniDIN-3 Pin Description**

Since both the left and right eye video frames are interleaved within a single video connection, two frames are required (a left eye and a right eye frame) to present one full frame of active stereo video. Because of this frame pairing, the effective frame rate for the video signal is half the original signal's refresh rate.

**Interleaved Stereo Related Signals and Resulting Image**
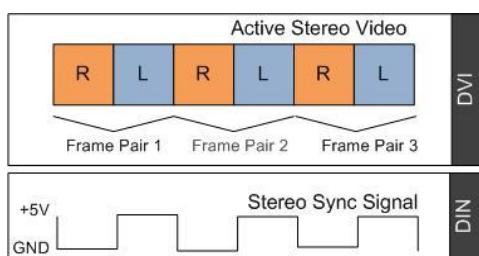
Figure 2: Stereo Signals

Figure 3: Resulting Display

Signal Flow

The diagram below shows the typical signal flow for a MirageHD / Spyder configuration using the SSO2 licensed option. Note the Spyder inputs and outputs are running a standard video refresh rate.
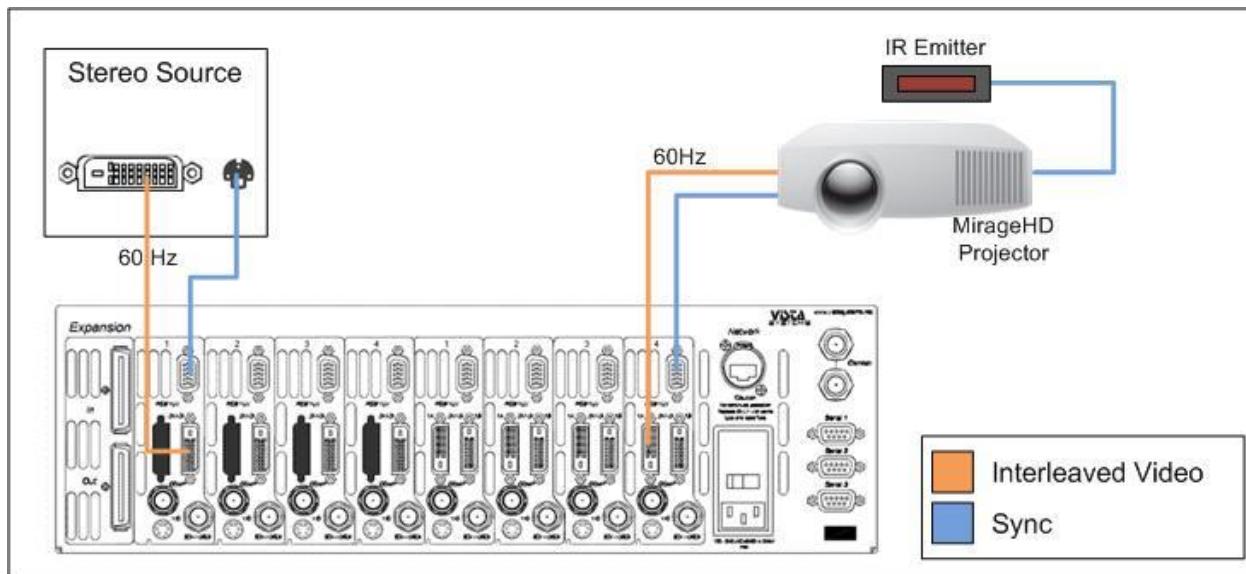

Figure 4: MirageHD / SSO2 Signal Flow

Building on the signal flow concept presented above, the next diagram shows a SSO2 configuration where a dual-headed computer operating in interleaved stereo is running into Spyder, which is in turn driving two MirageHD projectors.
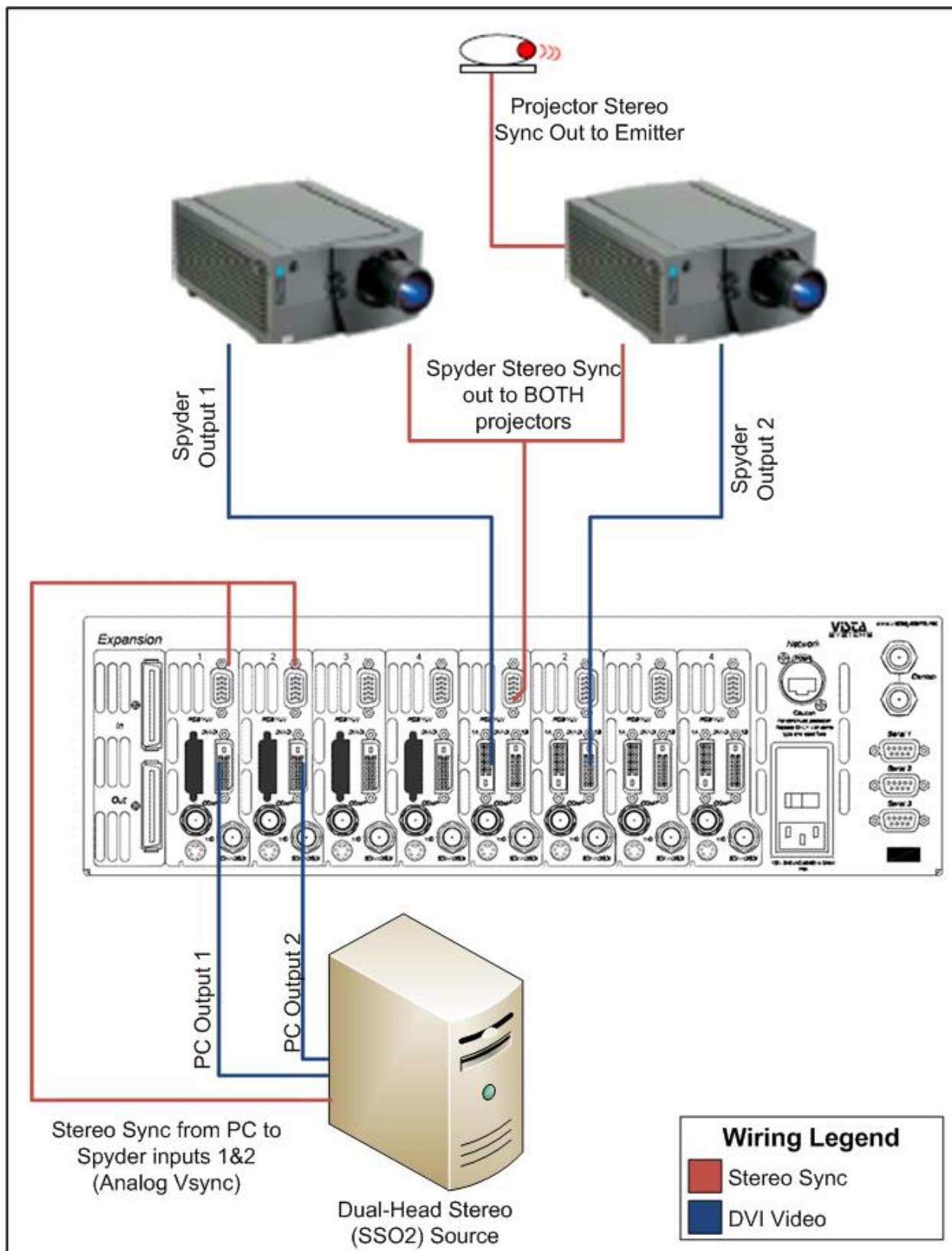
Figure 5: Dual-head computer into a Spyder feeding two projectors

How is this different from the existing SSO modes?

The stereoscopic implementation for the MirageHD projector is substantially different from the traditional active / passive stereo modes previously supported.

The VI is not split for left and right eyes

In traditional SSO stereo modes, the VI is internally split into two sections for the left and right eyes. This effectively divides the overall VI size of a single system in half, requiring parallel configurations to be created in many multi-output scenarios. The SSO2 mode does not split the VI into two eyes, instead handling the left / right eye interleaving at the input.

SSO and SSO2 modes are mutually exclusive

Due to the way the two modes are handled internally, 'active' and 'passive' input and output configuration types are not valid with the 'Interleaved' stereo mode used when running a MirageHD stereo configuration. Alternately, the 'interleaved' stereo mode cannot be used in conjunction with the 'Active' or 'Passive' stereoscopic modes.

Valid Modes for stereo configurations			
Input / Output Type	Active Stereo	Passive Stereo	MirageHD Stereo
Active	X	X	
Passive	X	X	
Interleaved			X

Table 2: Valid Modes for Stereo Configurations

SSO2 stereo inputs do not require two Spyder inputs

SSO2 inputs consume only a single input connector to bring in the 'interleaved' formatted stereo video, dramatically reducing physical input consumption.

What is the difference between 'Active' and 'Interleaved'?

The interleaved stereo mode, new in SSO2, is much like the existing active stereo mode. Both signals involve a separate sync signal which uniquely identifies left and right eye frames of video, and the video content of both signals interleave left and right eye frames to transmit a stereoscopic image through a single video cable.

Frame Rate

The largest difference between the two modes is frame rate. The frame rate of an interleaved stereo source is not doubled as it is in active stereo sources. Considering that two frames of video are required (a left and right eye frame), an interleaved stereo input running 60Hz has an effective refresh rate of 30Hz. An active stereo source regains a full frame rate by doubling output refresh rate; to achieve an effective 60Hz refresh rate the actual refresh rate must be doubled to 120Hz.

Maximum Supported Resolution

There is an additional benefit to the lower frame rate of interleaved stereo sources as inputs to Spyder; the maximum input resolution is not limited to the SXGA+ resolution as it is in active stereo inputs. An interleaved stereo input has the same maximum resolution as a non-stereo input – 2048x1200@60hz.

Physical Input Requirements

The frame doubling created by an active stereo source requires the Spyder system to use two inputs to process the signal, quickly increasing input consumption when multiple active sources are in use. The 'normal' refresh rate of the interleaved stereo source, however, can be processed by a single Spyder input module.

Licensing

The Spyder stereoscopic option is available with any new or existing Spyder system, and is applied in the form of a license file provided by Christie Digital. Spyder systems not containing a valid stereo license file will not perform any of the stereoscopic specific functions listed in this guide.

The stereoscopic option (SSO) covers SSO2 / MirageHD stereo licensing, is purchased separately from the Spyder system. For information on SSO/SSO2 license pricing information and for information on requesting, obtaining, and applying Spyder licenses, visit:

http://www.christiedigital.com/en-us/product-support/support-offices/Pages/default.aspx

Creating and Editing Spyder Stereoscopic Configurations

This section describes the process of configuring the Spyder windowing system to generate a stereoscopic image in SSO2 mode. As stereo configuration and operation procedures within Spyder are nearly the same as non-stereo configurations, this section will focus on specific differences related to the MirageHD stereoscopic mode of operation.

Building a new Configuration

The process of building a stereoscopic configuration in Spyder is almost identical to the process of building non-stereo configurations, with a single important exception. The frame rate selector on the new configuration GUI contains a 'mode' dropdown which designates whether the new configuration is to be generated for a normal (2D) or a stereoscopic display. Selecting the 'MirageHDStereo' menu option will cause the PixelSpaces and outputs to be created in SSO2 mode; the inputs for the system are defined after the initial configuration.
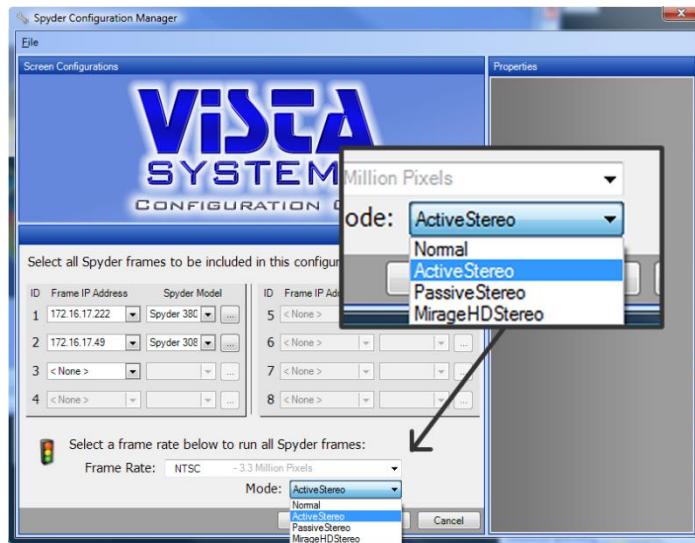
Figure 6: New Configuration Mode Selection

Figure 5 shows the mode selector in the new configuration GUI which is used as part of the definition of a new stereoscopic configuration. Note that stereo modes are global, meaning that it is not possible to create both stereo and non-stereo PixelSpaces in a single system using the new configuration GUI.

When running stereoscopic modes, the frame rate selection should be set to match the output frame rate when running in MirageHD stereo mode. A Spyder frame running 59.94Hz interleaved stereo outputs, for example, must be configured with an internal frame rate of NTSC (59.94Hz). Attempting to select a different frame rate for the internal VI may cause erratic operation of both the inputs and outputs of the system.

A step-by-step set of instructions for creating new configurations are described in the standard Spyder Advanced software guide. Please consult this guide for additional information on creating new configurations.

Defining Input Sources

Stereo and non-stereo sources are defined after initial system configuration. The new source property panel allows for default options when creating the source definition. This property panel is accessible from the Vista Advanced / Basic software applications by clicking an unused register in the source list. Figure 6 shows the new source property panel.

Notice the 'Stereo Options' section of the panel. When set to 'Off' (default), the new source being created will not be defined as a 2D / non-stereo input. The 'Active' and 'Passive' stereo modes are invalid for use with the SSO2 mode; the 'Interleaved' selection is the only valid stereoscopic mode option.

The table below shows the various options available when selecting a valid stereo mode as part of a new source configuration.
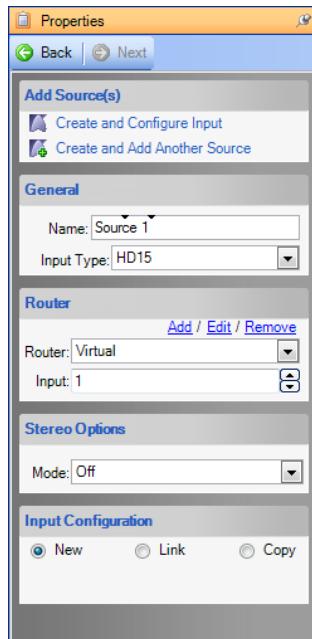
Figure 7: New Source Panel

Options for Creating New Sources	
Stereo Options Mode: Off	**Off** This creates a non-stereo (2D) source image. No additional options are available when the 'Off' mode is selected.
Stereo Options Mode: Interleaved Active Stereo Sync Add / Edit / Remove Router: <None> Input: 1	**Interleaved Stereo Input** When defining an interleaved stereo source, a router and associated input can be defined for the stereo sync signal, which can be routed separately from the video signal.
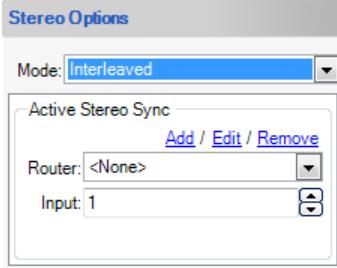
After selecting the desired options in the new source property panel, click either the 'Create and Configure Input' or the 'Create and Add Another Source' link at the top of the panel. Each of the two options will use the

specified options to create a new source definition; however the first option will display the source in a configuration monitor (if present).

Editing input configurations

After a source is created as described above, all properties of the source and the associated input configuration can be edited within the layer property panel. To display the layer property panel, simply click an onscreen layer.

The table below shows the input configuration section of the layer property panel. To conserve space, the image displayed has been cropped to display only the section with relevance to stereo options.

Stereoscopic specific options for input modules	
	Input Configuration Layer Properties **Stereo Mode** • Defines the stereo mode for the selected input. Interleaved or Off are the only two valid modes when using SSO Mode 2 **Clone Offset** • This option is not supported in SSO Mode 2.
	Input Configuration Advanced Properties **StereoInvertEyes** • This option, available only in the advanced section of the layer properties panel, causes the system to invert the left and right eye signals on the Spyder input.

Editing output configurations

Stereo properties of output configurations can be edited in the same manner as the normal output properties after the initial system configuration is performed. To access output properties, click the desired output in the 'System Patch' tab of the Vista Advanced or Vista Basic user interface.

The tables below show the available options for manipulating stereoscopic outputs using the output property panels.

Figure 8: Standard Output Properties

Standard Output Property Panel Options

1. **Output Sync Type**
   - The 'Stereo' option is available in this dropdown, which allows a standard output to provide an active stereo signal from the V-Sync channel of the analog output connector. When in this mode the output will still output video with a composite sync.
   - The 'StereoInverted' option works the same as the 'Stereo' option mentioned above, however the sync pulse is inverted, to swap the left and right eye on the display device.
2. **Mode**
   - When running in SSO2 / MirageHD mode, the output should be set to Normal mode.

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