

Technical Reference

020-102207-01

Spyder Serial Commands



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Communicating with Spyder

Understand the information and procedures for communicating with Spyder from a remote location. Connectivity is available using an RJ-45 (Ethernet) connection or a 9-pin RS232 serial connection to the frame. Both the Ethernet and serial interfaces respond to the same string commands and can do so concurrently.

Serial connectivity

One of the three RS232 serial ports available on the back of the Spyder frame can be configured to accept external control commands by using Spyder Studio.

For more information on configuring Spyder Studio for external control, see the *Spyder Studio User Manual* (P/N: 020-102205-XX).



When using serial control, terminate each command with a carriage return.

Ethernet connectivity

To control the Spyder frame, send the commands listed in this manual in a UDP packet sent to port 11116 on the frame; no configuration is required.

Each message sent to Spyder over UDP must be precluded by a 10 byte message header, provided in the table below.

Index	Character
0	s
1	p
2	y
3	d
4	e
5	r
6	0x00 (hex)
7	0x00 (hex)

Index	Character
8	0x00 (hex)
9	0x00 (hex)

Command considerations

Note the following about the commands:

- When specifying layer IDs, the IDs start at 2. Layer ID 0 and 1 are reserved for future commands using the two background layers of the system.
- Replace the string argument spaces with the three character ASCII string %20 to create a valid command, as the space is used as the argument delimiter.
- Do not put an argument delimiter (space character) between the header and the external control command.

Command processor responses

A response is returned for every command sent to the Spyder system.

If multiple values are returned in a single response, the argument delimiter is an ASCII space character and argument values containing a space are converted to the three character ASCII string %20. The first response argument is always the error code for the command, which lets the user know if a command was successfully processed. The table below displays the various responses returned by the Spyder.

Response	Response name	Description
0	Success	The command was successfully processed.
1	Empty	The data requested is not available.
2	Header	An invalid command was specified.
3	Argument count	The command is missing the required minimum number of arguments.
4	Argument value	One or more arguments of the command were invalid.
5	Execution	An error occurred while processing the command. For details, check the Alert Viewer in Spyder Studio.
6	Checksum	Reserved.

Serial API commands

The Spyder commands can be used to modify product settings.

ARL—Apply Register to Layer

Applies a specified register to one or more layers.

This is useful for recalling register data types such as sources or treatments to layers.

Syntax and response

Syntax:

```
ARL <RegisterType> <ID> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<RegisterType>	Sets the register type.	0 (0x30) = Effect 1 (0x31) = Playitem 2 (0x32) = Not used 3 (0x33) = Not used 4 (0x34) = Command key/script 5 (0x35) = Treatment 6 (0x36) = Source 7 (0x37) = Function key 8 (0x38) = Not used 9 (0x39) = Not used 10 (0x31 0x30) = Still image
<ID>	Sets the register ID to recall.	—
<Layer1>....<LayerX>	Sets the IDs of the layers to recall.	—

ARO–Aspect Ratio Offset

Adjusts the aspect ratio offset parameter in the keyframe of the specified layers.

This command can also be used to set the total aspect ratio for a layer or adjust the keyframe aspect ratio offset directly.

Syntax

```
Syntax:
ARO <Type> <FloatingPoint> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<Type>	Determines the type of aspect ratio being set.	t = Sets the total aspect ratio o = Sets the keyframe aspect ratio offset a = Adjusts the existing keyframe aspect ratio offset
<FloatingPoint>	Sets the floating point aspect ratio value.	—
<Layer1>....<LayerX>	Sets the IDs of the layers to apply the aspect ratio offset to.	—

BLD–Load Still in Background

Loads a file as the background of either the current or next layer.

Syntax

```
Syntax:
BLD <Filename> <PixelspaceID> <Layer>
```

Arguments

Argument	Description	Values
<Filename>	Specifies the name of the file to load. If the image is not the same size as the pixelspace it is being loaded on, the image is automatically scaled to fit into it.	—
<PixelspaceID>	Sets the ID of the pixelspace to load onto.	—
<Layer>	Determines what layer to load the file onto.	0 = Loads onto the next background layer 1 = Loads onto the current background layer

BPL–Basic Preset Learn

Stores the current screen layout to a specified preset ID.

Syntax

```
Syntax:
BPL <Preset> [<Duration>]
```

Arguments

Argument	Description	Values
<Preset>	Determines the preset ID to save the current window position and keyframe information to.	—
<Duration>	Determines how long, in frames per second, a layer takes to transition from one keyframe to another. (Optional)	60 (Default)

BPR–Basic Preset Recall

Recalls an existing preset from the frame.

Syntax

```
Syntax:
BPR <Preset> [<Duration>]
```

Arguments

Argument	Description	Values
<Preset>	Determines the preset ID to recall from the server.	—
<Duration>	Determines how long, in frames per second, a layer takes to transition from one keyframe to another. (Optional)	60 (Default)

BTR–Transition Background

Transitions the background layers across all pixelspaces.
 pixelspace backgrounds cannot be transitioned individually.

Syntax

```
Syntax:
BTR <Duration>
```

Arguments

Argument	Description	Values
<Duration>	Determines how long, in frames per second, a background layer takes to transition.	—

CRP–Crop Layer

Sets the left, right, top, and bottom cropping for the content of the specified layers.

Syntax

Syntax: CRP <Left> <Right> <Top> <Bottom> <Layer1> [<Layer2>]...

Arguments

Argument	Description	Values
<Left>	Sets the amount to crop from the left side of the layer.	0.0 = No crop 1.0 = 100% crop
<Right>	Sets the amount to crop from the right side of the layer.	
<Top>	Sets the amount to crop from the top of the layer.	
<Bottom>	Sets the amount to crop from the bottom of the layer.	
<Layer1>....<LayerX>	Sets the IDs of the layers to crop.	—

CSO–Clear Still on Output

Clears an image currently loaded on a specified output ID.

Syntax

Syntax: CSO <OutputID> [<ChannelID>]

Arguments

Argument	Description	Values
<OutputID>	Sets the ID of the output to clear the image on.	—
<ChannelID>	Sets the ID of the channel on the output module to clear. (Optional) The channel-ID is only necessary on the quad-output Dx4 output modules.	0 to 3 No channel ID = All channels are cleared

DCK–Delete Command Key

Deletes an existing command key by either a register ID or script ID.

Syntax

Syntax:
DCK <ID> [<Type>]

Arguments

Argument	Description	Values
<ID>	Sets the ID to delete.	—
<Type>	Sets the type of ID. (Optional)	S = ScriptID (Default) R = RegisterID

DMB–Device Mixer Bus Apply

Allows the active bus to be selected for one or more control devices defined in the system.

This command is intended for devices configured as mixers.

Syntax and response

Syntax:
DMB <Duration> <Bus> <DeviceIndex1> [<DeviceIndex2>]...

Response:
<Result Code>

Arguments

Argument	Description	Values
<Duration>	Sets the transition duration to be applied to layers coming on or off of the program, in frames per second.	—
<Bus>	Sets the bus state to apply to the device.	OFF = Both layers for a device are off the screen PVW = The program layer of the device is in preview and the preview layer is off the screen PGM = Both the program and preview layers are visible in their respective pixelspaces.

Argument	Description	Values
<DeviceIndex1>....<DeviceIndexX>	Indicates the target device indexes.	Zero-based

DMT–Device Mixer Transition

Sets the automatic transition for a mixer one or more devices. This command is intended for devices configured as mixers.

Syntax and response

Syntax: DMT <Duration> <DeviceID1> [<DeviceID2>]...
Response: <Result Code>

Arguments

Argument	Description	Values
<Duration>	Sets the transition duration to be applied, in frames per second.	1 = Forces a cut transition
<DeviceID1>....<DeviceIDX>	Indicates the target device indexes.	Zero-based

FKR–Function Key Recall

Recalls a single function key defined in Spyder.

Syntax

Syntax: FKR <ID> <Layer1> [<Layer2>]... <IDType>

Arguments

Argument	Description	Values
<ID>	Sets the ID of the function key.	–
<Layer1>....<LayerX>	Sets the IDs of the layers for the relative function keys. (Optional)	–
<IDType>	Defines the ID type being recalled. If this argument is not specified, the function key ID is used. (Optional)	F = Function key ID (Default) R = RegisterID

Argument	Description	Values
	To access registers on pages above the first page, add the page number * 1000 to the register ID to be recalled. For example, to recall a function key at register ID 2 on page 3, send a register ID of 3002.	

FRZ—Freeze Layer

Freezes or unfreezes one or more layers.

Syntax

<p>Syntax:</p> <pre>FRZ <Freeze> <Layer1> [<Layer2>]...</pre>

Arguments

Argument	Description	Values
<Freeze>	Enables or disables freezing the specified layers.	0 = Disables freezing the specified layers 1 = Enables freezing the specified layers
<Layer1>....<LayerX>	Sets the IDs of the layers to freeze or unfreeze.	—

ICK—Input Color Key

Enables or disables, and adjusts the color key for the specified layers.

If this command is used, the ILK—Input Luminance Key command is automatically disabled.

Syntax

<p>Syntax:</p> <pre>ICK <KeyEnabled> <ColorRed> <ColorGreen> <ColorBlue> <RangeRed> <RangeGreen> <RangeBlue> <ColorGain> <Layer1> [<Layer2>]...</pre>

Arguments

Argument	Description	Values
<KeyEnabled>	Enables or disables the color key adjustment. If disabling the color key, all key-specific arguments are not used and must be set to zero.	0 = Disables the color key adjustment 1 = Enables the color key adjustment

Argument	Description	Values
<ColorRed>	Sets the color-red parameter for the specified layers.	0 to 255
<ColorGreen>	Sets the color-green parameter for the specified layers.	
<ColorBlue>	Sets the color-blue parameter for the specified layers.	
<RangeRed>	Sets the range-red parameter for the specified layers.	
<RangeGreen>	Sets the range-green parameter for the specified layers.	
<RangeBlue>	Sets the range-blue parameter for the specified layers.	
<ColorGain>	Sets the color gains for the specified layers.	0 to 512
<Layer1>...<LayerX>	Sets the IDs of the layers to apply the settings to.	—

Related information

ILK–Input Luminance Key (on page 16)

ICL–Input Config Learn

Saves the input configuration for a layer ID to a configuration ID for later recall.

Syntax

```
Syntax:
ICL <Input> <LayerID>
```

Arguments

Argument	Description	Values
<Input>	Sets the input configuration ID to save to.	—
<LayerID>	Determines the layer ID to save the input configuration from.	—

ICR—Input Configuration Recall

Loads a previously saved input configuration onto the video source of a specified layer ID.

Syntax

Syntax:
ICR <ConfigurationID> <LayerID> <ConnectorType>

Arguments

Argument	Description	Values
<ConfigurationID>	Sets the ID number to store the current input configuration of the layer ID to.	-1 = Forces an auto-synch
<LayerID>	Sets the layer ID to apply the input configuration to.	—
<ConnectorType>	If <ConfigurationID> is set to -1, sets the connector type to be switched to and auto-synched on a layer.	0 = HD15 1 = DVI 2 = SDI 3 = Composite 4 = SVideo

ILA—Input Level Adjust

Adjusts brightness, hue, contrast, saturation, and gamma on any layer in the system.

Syntax

Syntax:
ILA <Brightness> <Contrast> <Hue> <Saturation> <Gamma> <Layer1> [<Layer2>]...

Arguments

Argument	Description	Values
<Brightness>	Adjusts the brightness on the specified layers.	0.0 to 2.0
<Contrast>	Adjusts the contrast on the specified layers.	0.0 to 2.5
<Hue>	Adjusts the hue on the specified layers.	-180 to 180
<Saturation>	Adjusts the saturation on the specified layers.	0.0 to 2.0
<Gamma>	Adjusts the gamma on the specified layers. (Optional) The value must be provided using a decimal (dot) notation.	0.0 to 3.0
<Layer1>....<LayerX>	Sets the IDs of the layers to adjust.	—

ILK—Input Luminance Key

Enables or disables, and adjusts the luminance key for the specified layers.

If this command is used, the ICK—Input Color Key command is automatically disabled.

Syntax

```
Syntax:
ILK <KeyEnabled> <Clip> <Gain> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<KeyEnabled>	Enables or disables the color key adjustment. If disabling the luminance key, all key-specific arguments are not used and must be set to zero.	0 = Disables the luminance key adjustment 1 = Enables the luminance key adjustment
<Clip>	Sets the clip for the specified layers.	0 to 512
<Gain>	Sets the gains for the specified layers.	
<Layer1>....<LayerX>	Sets the IDs of the layers to apply the settings to.	—

Related information

ICK—Input Color Key (on page 13)

IRA—Input Config Raster

Allows the video shown inside of a window to be repositioned on a per edge basis.

Additionally, use this command to perform an auto raster (analog only), in which a specified layer inspects the video content currently in the layer and repositions the input video automatically.

Syntax and response

```
Syntax:
IRA <LayerID> <Edge> <Delta>
Response:
<Result Code>
```


Arguments

Argument	Description	Values
<LayerID>	Sets the ID of the layer to adjust.	—
<Edge>	Sets the edge to adjust.	L = Left R = Right T = Top B = Bottom A = AutoRaster
<Delta>	Sets the number of pixels to move.	negative number = Moves the video edge inward positive number = Moves the video edge outward

KBD–Border Adjust

Adjusts one or more border properties on a layer.

Syntax

Syntax:
 KBD <ID> <BorderThickness> <Red> <Green> <Blue> <H-BevelOffset> <V-BevelOffset>
 <InsideSoftness>

Arguments

Argument	Description	Values
<ID>	Sets the ID of the layer to adjust.	—
<BorderThickness>	Determines the thickness of the border. Set a negative number for outside softness.	-255 to 255
<Red>	Sets the red parameter for the RGB color value. If specifying the red parameter, the blue and green parameters must also be set.	0 to 255
<Green>	Sets the green parameter for the RGB color value. If specifying the green parameter, the blue and red parameters must also be set.	
<Blue>	Sets the blue parameter for the RGB color value. If specifying the blue parameter, the red and green parameters must also be set.	
<H-BevelOffset>	Sets the horizontal bevel offset.	
<V-BevelOffset>	Sets the vertical bevel offset.	
<InsideSoftness>	Sets the sharpness of the inside edge of the border.	

KPS–Layer Position Change

Sets the horizontal and vertical position of one or more layers.

Note the following about positions:

- Positions are mapped in pixels, relative to the top-left pixelspace corner associated with the layer.
- Position changes can be relative to the layer's current position or can be an absolute position setting.

Syntax

```
Syntax:
KPS <Position> <Horizontal> <Vertical> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<Position>	Determines if the position is absolute or relative to the current position of the layer.	0 = Absolute position in pixels 1 = Relative position in pixels
<Horizontal>	Sets the horizontal position.	—
<Vertical>	Sets the vertical position.	—
<Layer1>....<LayerX>	Sets the IDs of the layers.	—

KSH–Shadow Adjust

Adjusts the shadow parameters for a layer.

Syntax

```
Syntax:
KSH <ID> <Horizontal> <Vertical> <Size> <Transparency> <Softness>
```

Arguments

Argument	Description	Values
<ID>	Sets the ID of the layer to adjust.	—
<Horizontal>	Sets the horizontal position of the shadow.	0 to 255
<Vertical>	Sets the vertical position of the shadow.	
<Size>	Sets the size of the shadow.	
<Transparency>	Sets the transparency of the shadow.	

Argument	Description	Values
<Softness>	Sets the outside softness of the shadow.	

KSZ–Layer Size Change

Sets the horizontal size of one or more specified layers.
The vertical size adjusts automatically to ensure the layer's aspect ratio.

Syntax

Syntax: K SZ <Horz> <Layer1> [<Layer2>] ...
--

Arguments

Argument	Description	Values
<Horz>	Sets the horizontal size, in pixels, of the specified layers.	—
<Layer1>....<LayerX>	Sets the IDs of the layers to size.	—

KTL–Treatment Learn

Learns the keyframe attributes for a specified layer.

Syntax

Syntax: K TL <Treatment> <Layer> <Argument3>...<Argument7>

Arguments

Argument	Description	Values
<Treatment>	Sets the treatment ID.	-1 = Next available treatment ID
<Layer>	Specifies the layer ID to learn from.	—
<Argument3>...<Argument7>	Learns keyframe attributes.	Argument3 = Learns the position attribute Argument4 = Learns the crop attribute Argument5 = Learns the clone attribute Argument6 = Learns the border attribute Argument7 = Learns the shadow attribute

KTR–Treatment Recall

Recalls a treatment to one or more layers.

Syntax

```
Syntax:
KTR <TreatmentID> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<TreatmentID>	Sets the ID of treatment to recall.	—
<Layer1>....<LayerX>	Sets the IDs to recall the treatment to.	—

LAC–Layer Alignment Control

Allows one or more layer keyframes to be manipulated by the Spyder Studio to achieve a specified alignment effect.

The alignment effects are the same as the ones available from the simulator control of Spyder Studio.

Syntax

```
Syntax:
LAC <EffectID> <RecallDuration> <Layer1> [<Layer2>]...
```

Commands

Command	Description	Values	Minimum layers
<EffectID>	Sets the alignment effect.	0 (Align Bottom) = Repositions specified layers vertically to make the bottom edge of the layers match the first specified layer	2
		1 (Align Center) = Repositions specified layers horizontally to make the center position of all layers match the first specified layer	
		2 (Align Left) = Repositions specified layers horizontally to make the left edge of all layers match the first specified layer	
		3 (Align Middle) = Repositions specified layers vertically to make the center position of all layers match the first specified layer	

Command	Description	Values	Minimum layers
		4 (Align Right) = Repositions all specified layers horizontally to make the right edge of all layers match the first specified layer	
		5 (Align Top) = Repositions specified layers vertically to make the top edge of layers match the first specified layer	
		6 (Center Horizontal) = Repositions all specified layers as a group so that layers are centered horizontally in their current pixelspace	1
		7 (Center Vertical) = Repositions all specified layers as a group so that layers are centered vertically in their current pixelspace	
		8 (Horizontal Decrement) = Decreases the horizontal spacing between two or more layers	2
		9 (Horizontal Increment) = Increases the horizontal spacing between two or more layers	
		10 (Make Horizontal Equal) = Makes the horizontal spacing between all specified layers equal to the spacing between the first and second specified layers	3
		11 (Make Same Height) = Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers	2
		12 (Make Same Width) = Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers	
		13 (Make Vertically Equal) = Makes the vertical spacing between all specified layers equal to the spacing between the first and second specified layers	3
		14 (Remove Horizontal Spacing) = Removes spacing between specified layers, causing them to be horizontally stacked in the order specified	2
		15 (Remove Vertical Spacing) = Removes spacing between specified layers, causing them to be vertically stacked in the order specified	
		16 (Size to Display Height) = Resizes specified layers to fill their respective pixelspace vertically; no adjustment is made to the horizontal position	1
		17 (Size to Display Width) = Resizes specified layers to fill their respective pixelspace horizontally, and centers the input vertically	

Command	Description	Values	Minimum layers
		18 (Snap to Bottom) = Repositions specified layers vertically to align bottom edges of layers with the bottom of their pixelspaces	
		19 (Snap Left) = Repositions the specified layers horizontally to align left edges of layers with the left edge of their pixelspaces	
		20 (Snap Right) = Repositions the specified layers horizontally to align right edges of layers with the right edge of their pixelspaces	
		21 (Snap Top) = Repositions the specified layers vertically to align top edges of the layers with the top edge of their pixelspaces	
		22 (Stack Horizontal) = Makes all layers the same height, centers them vertically with the first specified layer, and positions them in a horizontal array running to the right of the first layer	2
		23 (Stack Vertical) = Makes all layers the same width, centers them horizontally with the first specified layer, and positions them in a vertical array running downward starting at the first layer's position	
		24 (Swap Windows) = Swaps horizontal position and size between the two specified layers	
<RecallDuration>	Sets the duration for the alignment recall, in frames per second.	—	—
<Layer1>....<LayerX>	Sets the IDs of the layers to crop.	—	—

LAP—Layer Assign pixelspace

Associates a layer with a particular pixelspace.

Syntax

```
Syntax:
LAP <ID> <Visibility> <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<ID>	Sets the pixelspace to associate the layer with.	—
<Visibility>	Hides or shows the layers at the time this command is applied. Making the layer visible allows additional commands to be sent to configure the layer before it is transitioned onto the screen with the TRN command.	0 = Hides the layers (Default) 1 = Makes the layers visible
<Layer1>...<LayerX>	Sets the IDs of the layers to associate with the pixelspace.	—

Related information

TRN–Transition Layers (on page 40)

LCC–Layer Clone Control

Adjusts the clone property on the keyframe of a specified layer.

Syntax

Syntax: LCC <LayerID> <Mode> [<Offset>] <OffsetType>

Arguments

Argument	Description	Values
<LayerID>	Sets the ID of the layer that the keyframe is on.	—
<Mode>	Sets the clone mode. If the mode is specified with no offset value, the clone offset value stored in the layer's current keyframe is used.	0 = Off 1 = Offset 2 = Mirror
<Offset>	Sets the offset distance in relative coordinates or the pixel value for the clone position. (Optional)	—
<OffseType>	Determines the type of clone offset.	0 = Absolute (in pixels) 1 = Relative coordinate (Default)

LCK–Learn Command Key

Learns a new command key from one of the Spyder Studio interfaces.

Syntax and response

```
Syntax:
LCK <LearnAs> <Name> <RegisterID> <LearnFrom> <LearnMixers>

Response:
<Result Code> <CommandKey ID> <Script ID>
```

Arguments

Argument	Description	Values
<LearnAs>	Determines if the command key is learned as absolute or relative.	0 = Absolute 1 = Relative
<Name>	Sets the name of the command key to be learned.	—
<RegisterID>	Sets the ID of the register to learn the command to.	—
<LearnFrom>	Determines what the command key is learned from.	1 = Preview only 2 = Program only 3 = Both
<LearnMixers>	Determines if the command key is learned as a mixer.	0 = False 1 = True

LSO–Load Still on Output

Loads an unscaled still image directly onto a Spyder output for the purpose of loading custom test patterns.

Syntax

```
Syntax:
LSO <Filename> <OutputID> [<ChannelID>]
```

Arguments

Argument	Description	Values
<Filename>	Sets the file of the image to load. The filename must exist in the Stills directory on the Spyder server, which can be accessed using FTP or the Spyder Studio software.	—
<OutputID>	Sets the ID of the output to load the image on.	—

Argument	Description	Values
<ChannelID>	Sets the ID of the channel on the Dx4 output module to load. (Optional) The <ChannelID> is only necessary on the quad-output Dx4 output modules.	0 to 3

LSP—Layer Size and Position Change

Sets the size and horizontal and vertical position of one or more layers.

In cases where the size and position are being modified simultaneously for an application, Christie recommends using this command instead of the individual layer size and position commands (KPS and KSZ).

Syntax

Syntax: LSP <Position> <Horizontal> <Vertical> <Size> <Layer1> [<Layer2>]...

Arguments

Argument	Description	Values
<Position>	Determines the position.	0 = Absolute position 1 = Relative position to the current position of the layer
<Horizontal>	Sets the horizontal position in pixels.	—
<Vertical>	Sets the vertical position in pixels.	—
<Size>	Sets the horizontal layer size in pixels.	—
<Layer1>....<LayerX>	Sets the IDs of the layers.	—

Related information

KPS—Layer Position Change (on page 18)

KSZ—Layer Size Change (on page 19)

OCB—Output Configuration Blending

Enables or disables the blending on a Spyder output.

Additionally, the blend width, type, and curve parameters can be adjusted.

Syntax and response

Syntax: OCB <OutputID> <Edge> <Enable> <BlendWidth> <Mode> <Curve1> <Curve2>

Response:
 <Result Code>

Arguments

Argument	Description	Values
<Output>	Sets the ID of the output to configure.	Zero-based
<Edge>	Sets the edge of the blending area of the output.	L = Left R - Right
<Enable>	Enables or disables the blending of the output.	0 = Disables the blending of the output 1 = Enables the blending of the output
<BlendWidth>	Sets the width of the blend in pixels.	—
<Mode>	Sets the mode of the blend.	Bezier Gamma Velocity
<Curve1>	Sets the curve parameter 1.	0.000 to 1.000
<Curve2>	Sets the curve parameter 2.	

OCF–Output Configuration Format

Sets the video format being output by a specified output.

Currently this command supports configuring VESA output formats only. Additionally, Spyder outputs support specific output refresh rates, and in cases where an unsupported refresh rate is specified, the closest available refresh value is used.

Syntax and response

Syntax:
 OCF <OutputID> <HActive> <VActive> <RefreshRate> <Interlaced> [<Timing>]
 Response:
 <Result Code>

Arguments

Argument	Description	Values
<OutputID>	Sets the output ID.	Zero-based
<HActive>	Sets the horizontal active resolution.	—
<VActive>	Sets the vertical active resolution.	—
<RefreshRate>	Sets the refresh rate. Supports floating point precision.	—
<Interlaced>	Sets the interlaced format.	0 = Non-interlaced

Argument	Description	Values
		1 = Interlaced
<Timing>	Sets the reduced blanking timing.	0 = Standard timing 1 = Reduced blanking timing

OCM–Output Configuration Mode

Sets the output mode for a specified output.

The arguments for this command vary depending on the mode being applied.

Syntax and response for Normal mode

Syntax:

```
OCM <OutputID> <Mode> [<HStart>] [<VStart>] [<DX4Channel>]
```

Response:

```
<Result Code>
```

Arguments for Normal mode

Argument	Description	Values
<OutputID>	Sets the ID of the output.	Zero-based
<Mode>	Sets the output mode to Normal.	Normal
<HStart>	Sets the horizontal starting position for the output.	—
<VStart>	Sets the vertical starting position for the output.	—
<DX4Channel>	Sets the DX4 output channel. This argument only applies to DX4 output cards. (Optional)	0 to 3

Syntax and response for OpMon and Scaled modes

Syntax:

```
OCM <OutputID> <Mode> <PixelspaceID>
```

Response:

```
<Result Code>
```

Arguments for OpMon or Scaled modes

Argument	Description	Values
<OutputID>	Sets the ID of the output.	Zero-based
<Mode>	Sets the output mode.	OpMon Scaled

Argument	Description	Values
<PixelspaceID>	Sets the program pixelspace to focus OpMon or Scaled on. If a preview ID is supplied, its associated program pixelspace is applied.	—

OCR–Output Configuration Rotation

Sets the rotation parameter of a specified output.

Rotation is not supported on all output module types. For additional information, contact Christie Technical Support.

Syntax and response

<p>Syntax:</p> <pre>OCR <OutputID> <RotationAngle></pre> <p>Response:</p> <pre><Result Code></pre>
--

Arugments

Argument	Description	Values
<OutputID>	Sets the output ID.	Zero-based
<RotationAngle>	Sets the angle of the rotation in 90 degree increments.	0 90 180 270

OCS–Output Configuration Save

Forces the active configuration for an output to be saved to the persistent storage on Spyder.

To prevent changes from being lost when the system is restarted, call this command after making output configuration adjustments.

Syntax and response

<p>Syntax:</p> <pre>OCS <OutputID></pre> <p>Response:</p> <pre><Result Code></pre>
--

Arguments

Argument	Description	Values
<OutputID>	Sets the ID of the output to save.	Zero-based

OFZ–Freeze Output

Freezes or unfreezes one or more outputs.

This command is only compatible with universal outputs. DX4 outputs do not support individual freeze or unfreeze functionality.

Syntax

Syntax: OFZ <Freeze> <Output1> [<Output2>]...
--

Arguments

Argument	Description	Values
<Freeze>	Enables or disables freezing the specified layers.	0 = Disables freezing the output 1 = Enables freezing the output
<Output1>...<OutputX>	Sets the IDs of the outputs to freeze or unfreeze.	—

QRC–Query Router Crosspoint

Queries one or all router outputs for their currently connected input.

Note the following about inputs and outputs:

- For level controlled routers, the input returned is the input connected to the output on the level configured to be controlled by Spyder.
- If no specific output is supplied, the inputs for all outputs are returned.
- Inputs and outputs returned are zero indexed. For example output 1 on the router is returned as a zero (0).
- An output with no input connected (disconnected) returns -1 for the input.

Syntax and response

Syntax: QRC <RouterID> [<OutputID>]
Response: <Result Code> <Router ID> <Output>:<Input> [<Output>:<Input>]

Arguments

Argument	Description	Values
<RouterID>	Sets the router ID to query.	—
<OutputID>	Sets the router output to query the status for.	—

RAR—Request Aspect Ratio

Requests the aspect ratio of a defined source.

Syntax

```
Syntax:
RAR <Layer>
```

Arguments

Argument	Description	Values
RAR <Layer>	Sets the ID of the layer or the source name to request the aspect ratio for.	—

RBL—Request Basic Preset List

Returns a list of preset names and their associated IDs.

As preset lists can be long, additional arguments are available to request portions of the list at a time.

Syntax and response

```
Syntax:
RBL [<StartIndex>] [<MaxCount>] [<Chars>]
Response:
<Result Code> <Return Count> [<Preset1 ID> <Preset1 Name>]...
```

Arguments

Argument	Description	Values
<StartIndex>	Determines which index to begin returning the list of preset names and IDs.	—
<MaxCount>	Sets the maximum number of registers to return.	—
<Chars>	Sets the number of characters to truncate names to.	—

RCR–Router Crosspoint Recall

Switches crosspoints on a router connected to the Spyder frame.

The <output> and <input> arguments can be repeated as many times as required to stack a series of switches into a single command. If the router and the Spyder control protocol for the router support stack and trigger switching, Spyder uses this functionality automatically when sending a command with multiple switch assignments.

Syntax

```
Syntax:
RCR <RouterID> [<Switch>] <Output> <Input>
```

Arguments

Argument	Description	Values
<RouterID>	Sets ID of the router to switch.	—
<Switch>	Determines which patch is switched. If this argument is not specified, the logical patch is switched. (Optional) A logical output refers to the router patch configured from Spyder Studio, stored as part of the router configuration.	L = Switch logical Output (Default) P = Switch Physical Outputs
<Output>	Sets the output to switch.	Zero-based
<Input>	Sets the input to switch.	Zero-based

RCS–Request Connection Status

Allows for the current connected or disconnected status of a specified input to be queried.

When called, the system polls the current connector type of the specified input in an attempt to determine if a video source is connected. Do not call this command too frequently (more than once per second) as system performance may degrade.

Syntax and response

```
Syntax:
RCS <LayerID>

Response:
<Result Code> <Layer ID> <Current Connector Type> <Connection Status>
```

Arguments

Argument	Description	Values
<LayerID>	Sets the ID of the layer to check the connection status on.	—

Returned values

Response	Values
Connection status	0 = Disconnected 1 = Connected 2 = Unknown
Current connector type	0 = HD15 1 = DVI 2 = SDI 3 = Composite 4 = SVideo

RLC—Request Layer Cont

Retrieves the logical layer count within the connected Spyder system.

Syntax and response

Syntax: RLC

Arguments

Argument	Description	Values
RLC	Retrieves the logical layer count within the connected Spyder system. The logical layer count includes two background layers in Spyder. In most cases, applications should subtract two from the response.	—

RLK—Request Layer KeyFrame

Retrieves the keyframe values for a layer ID.

Christie recommends implementing the code to handle additional values which may be appended to the end of the responses in future versions.

Syntax and response

Syntax:

RLK <LayerID>

Response:

<Result Code> <Relative HPosition> <Relative VPosition> <X Position> <Y Position>
 <Width> <Height> <Border Thickness> <Border Red> <Border Green> <Border Blue> <Border
 HBezel Offset> <Border VBezel Offset> <Border Inside Softness> <Border Outside
 Softness> <OutSide Edges> <Shadow HOffset> <Shadow VOffset> <Shadow HSize> <Shadow
 Softness> <Shadow Transparency> <Clone Mode> <Clone Offset> <Left Crop> <Right Crop>
 <Top Crop> <Bottom Crop> <Crop Anchor> <AR Offset> <Zoom> <HPan> <VPan> <Pixelspace
 ID> <Transparency>

Arguments

Argument	Description	Values
<LayerID>	Specifies the ID of the layer to retrieve the keyframe values from.	—

Returned values

Response	Values
<Outside Edges>	Provided as a hexadecimal value, with the lower four-bits indicating specific edges enabled. <ul style="list-style-type: none"> • 0x01—Top enabled • 0x02—Bottom enabled • 0x04—Left enabled • 0x08—Right enabled
<Clone Mode>	0 = Off 1 = Offset 2 = Mirror
<Crop Anchor>	0 = Input center 1 = Window center

RLS—Request Layer Source

Retrieves the current source name and associated source register ID loaded on a specified layer.

Note the following about returned results:

- If no source is currently assigned to the specified layer, an empty result code is returned with no parameters.
- If a source is assigned to the specified layer but no corresponding register can be found, 1 is returned for the register ID.

Syntax and response

Syntax:

```
RLS <LayerID>
Response:
<Result Code> <Source Name> <Source Register ID>
```

Arguments

Argument	Description	Values
<LayerID>	Specifies the ID of the layer to retrieve the information for.	—

RPD—Request pixelspace Definitions

Returns a list of all the pixelspaces currently defined in the system.

Syntax and response

```
Syntax:
RPD
Response:
<Result Code> <Count> [<ID> <Name> <Current Background> <Next Background> <X
Position> <YPosition> <Width> <Height> <RenewalGroup ID>]...
```

Arguments

Argument	Description	Values
RPD	Returns a list of all the pixelspaces currently defined in the system.	—

RPS—Request I/O Processor Status

Queries the current state of the I/O processor.

Asynchronous operations, such as still loading, are processed serially as background tasks in Spyder. You can query the current state of the I/O processor to use in external state logic such as needing to wait for the image load commands to complete.

The status returned includes a numeric value from 0 to 101 giving the percent progress as well as an ASCII string with a generic description of the task being processed. When idle, this request returns a progress/message response of 0/<empty string> or 101/Ready.

Syntax and response

```
Syntax:
RPS [<Chars>]
Response:
<Result Code> <Progress> <Status Message>
```

Arguments

Argument	Description	Values
<Chars>	Sets the number of characters to truncate names to.	—

RRC—Request Register Count

Returns the number of registers for a specified data type, optionally on a specific page.

Syntax and response

<p>Syntax: RRC <RegisterType> [<PageNumber>]</p> <p>Response: <Result Code> <Register Count></p>
--

Arguments

Argument	Description	Values
<RegisterType>	Sets the register type.	0 (0x30) = Effect 1 (0x31) = Playitem 2 (0x32) = Not used 3 (0x33) = Not used 4 (0x34) = Command key/script 5 (0x35) = Treatment 6 (0x36) = Source 7 (0x37) = Function key 8 (0x38) = Not used 9 (0x39) = Not used 10 (0x31 0x30) = Still image
<PageNumber>	Determines the page number to return.	Zero-based -1 = Return all pages

RRL—Request Register List

Returns a list of registers and their associated IDs for a specified data type.

As register lists can be long, additional arguments are available to request portions of the list at a time.

Syntax and response

<p>Syntax:</p>

RRL <RegisterType> [<PageNumber>] [<StartIndex>] [<MaxCount> [<Chars>]

Response:

<Result Code> <Return Count> [<Register1 ID> <Register1 Name>]...

Arguments

Argument	Description	Values
<RegisterType>	Sets the register type.	0 (0x30) = Effect 1 (0x31) = Playitem 2 (0x32) = Not used 3 (0x33) = Not used 4 (0x34) = Command key/script 5 (0x35) = Treatment 6 (0x36) = Source 7 (0x37) = Function key 8 (0x38) = Not used 9 (0x39) = Not used 10 (0x31 0x30) = Still image
<PageNumber>	Sets the page number to return. (Optional)	Zero-based index -1 = All pages
<StartIndex>	Sets the index to begin returning.	—
<MaxCount>	Sets the maximum number of registers to return.	—
<Chars>	Sets the number of characters to truncate register names to.	Positive integer

RSC—Recall Script Cue

Recalls an existing script at a specific cue.

To build scripts, use Spyder Studio.

Syntax

Syntax:

RSC <Script> <Cue> [<Type>]

Arguments

Argument	Description	Values
<Script>	Sets the ID of the script being recalled.	—
<Cue>	Sets what script cue to recall.	—

Argument	Description	Values
<Type>	<p>Defines the ID type being recalled being recalled in the <Script> argument. (Optional)</p> <p>To access registers on pages above the first page, add the page number * 1000 to the register ID to be recalled.</p>	<p>S = ScriptID (Default)</p> <p>R = RegisterID</p>

RSN–Request Source Name

Retrieves a list of sources defined within Spyder.

Syntax

<p>Syntax:</p> <p>RSN</p>

Arguments

Argument	Description	Values
RSN	Returns a list of sources names separated by spaces.	—

SAV–Force Server Save

Forces the remote Spyder frame to save all configuration and user data changes to non-volatile storage.

Syntax

<p>Syntax:</p> <p>SAV</p>

Arguments

Argument	Description	Values
SAV	Forces the remote frame to save all configuration and user changes to non-volatile storage.	—

SCL–Clear Still on Layer

Clears any loaded still images from one or more layers.

Syntax

```
Syntax:
SCL <Layer1> [<Layer2>]...
```

Arguments

Argument	Description	Values
<Layer1>...<LayerX>	Sets the IDs of the layers.	—

SCR–Script Cue Request

Requests the current execution cue of a specified script ID.

Returns a single integer value representing the current cue of the specified script or the command returns -1 if the specified script is not being executed on any layer.

Syntax

```
Syntax:
SCR <ID> <Type>
```

Arguments

Argument	Description	Values
<ID>	Sets the script ID to request the status for.	—
<Type>	Defines the ID type for the specified script.	S = ScriptID R = RegisterID

SDN–Restart Spyder Server

Restarts or powers off the Spyder server application remotely.

Syntax

```
Syntax:
SDN <0 | 1>
```

Arguments

Argument	Description	Values
<0 1>	Remotely restarts or powers off the server application.	0 = Powers the server off 1 = Restarts the server

SLD–Load Still on Layer

Loads a file onto one or more layers.

Syntax

Syntax: SLD <Filename> <Layer1> [<Layer2>]...
--

Arguments

Argument	Description	Values
<Filename>	Sets the name of the file to load.	—
<Layer1>....<LayerX>	Sets the IDs of the layers.	—

SRA–Source Apply

Applies an existing source to one or more specified layers.

A source is defined as an input configuration and a router input. To create sources and define connected routers, use Spyder Studio.

Syntax

Syntax: SRA <Name> <Layer1> [<Layer2>]...
--

Arguments

Argument	Description	Values
<Name>	Provides the name of the source.	—
<Layer1>....<LayerX>	Sets the IDs of the layers to apply the source to.	—

TRN–Transition Layers

Transitions layers on and off of their currently assigned pixelspace.

Syntax

Syntax:
 TRN <Mix> <Duration> <Layer1> [<Layer2>]...

Arguments

Argument	Description	Values
<Mix>	Transitions layers on and off of their currently assigned pixelspace.	0 = Mix off 1 = Mix on
<Duration>	Sets the transition duration in number of frames per second.	—
<Layer1>... <LayerX>	Sets the IDs of the layers to transition.	—

ZPA–Zoom/Pan Adjust

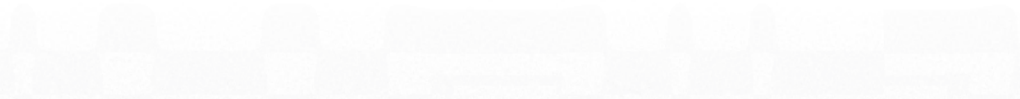
Changes the zoom and pan keyframe controls on a specified layer.

Syntax and response

Syntax:
 ZPA <RecallMode> <Zoom> <HorizontalPan> <VerticalPan> <LayerID>

Arguments

Argument	Description	Values
<RecallMode>	Determines if adjustments are relative to the existing zoom/pan settings of the layer or can be set to specific values directly.	0 = Absolute values 1 = Relative adjustment
<Zoom>	Sets the zoom value.	0.0 to 20.0
<HorizontalPan>	Sets the horizontal pan value.	-2048 to 2048
<VerticalPan>	Sets the vertical pan value.	-2048 to 2048
<LayerID>	Sets the layer of the keyframe to adjust.	—



Corporate offices

USA – Cypress
ph: 714-236-8610

Canada – Kitchener
ph: 519-744-8005

Consultant offices

Italy
ph: +39 (0) 2 9902 1161

Worldwide offices

Australia
ph: +61 (0) 7 3624 4888

Brazil
ph: +55 (11) 2548 4753

China (Beijing)
ph: +86 10 6561 0240

China (Shanghai)
ph: +86 21 6278 7708

Eastern Europe and
Russian Federation
ph: +36 (0) 1 47 48 100

France
ph: +33 (0) 1 41 21 44 04

Germany
ph: +49 2161 664540

India
ph: +91 (080) 6708 9999

Japan (Tokyo)
ph: 81 3 3599 7481

Korea (Seoul)
ph: +82 2 702 1601

Republic of South Africa
ph: +27 (0)11 510 0094

Singapore
ph: +65 6877-8737

Spain
ph: +34 91 633 9990

United Arab Emirates
ph: +971 4 3206688

United Kingdom
ph: +44 (0) 118 977 8000