Technical Reference

020-102783-04

Christie HS Series 2K

Serial Commands

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Communicating with Christie HS Series 2K

Understand the information and procedures for communicating with Christie HS Series 2K from a remote location.

You can communicate with the projector through the RS232 IN port or the Ethernet port. When connecting the projector to a computer, use a direct connection. Docking ports can cause software upgrade failures.

Model names

- D13HD2-HS
- D13WU2-HS
- D16HD-HS
- D16WU-HS
- D20HD-HS
- D20WU-HS

Connecting to the projector RS232 IN port

Communicate with the projector through the RS232 IN port.

1. Connect one end of a null standard nine-pin female to female modem cable to the projector RS232 IN port.
2. Connect the other end of the null standard nine-pin female to female modem cable to a computer.
3. Connect PIN 2 to PIN 3, PIN 3 to PIN 2 and PIN 5 to PIN 5.

Connecting to the projector Ethernet port

Communicate with the projector through the Ethernet port.

1. Change the IP address of your computer to place your computer on the same subnet as the projector.

   Make sure the projector IP address IS NOT the same as your computer IP address.
2. Connect to the projector from your computer.

   You can make the connection through an Ethernet cable or a wireless router.
3. On the TCP software, use port .

4. Start sending serial commands.

RS232 communication parameters

The RS232 IN port has several communication parameters.

Parameter	Value
Default baud rate	115200
Parity	None
Data bits	8
Stop bits	1
Flow control	None

Correct command formatting

Add a space between the function code and the number when entering commands.

For example, (PWR1) can be entered as (PWR 1).

Understanding the message format

Commands sent to and from Christie HS Series 2K are formatted as simple text messages consisting of a three letter function code, an optional four letter subcode, and optional data.

Source	Format	Function	Example
From controller	(Code Data)	SET (set power on)	`(PWR1) or (PWR 1)`
	(Code+Subcode Data)	SET (set active input for the main video)	`(SIN+MAIN 1)`
	(Code ?)	REQUEST (what is current power state?)	`(PWR?) or (PWR ?)`
	(Code+Subcode ?)	REQUEST (what is active input for the main video?)	`(SIN+MAIN?)`
From projector	(Code Data)	REPLY (power state is 1 "On")	`(PWR!001 "On")`
	(Code+Subcode Data)	REPLY (active input for the main video is 1 "DVI-D")	`(SIN+MAIN!001 "DVI-D")`

Available message types

Message type	Description
Set	A command to set a projector parameter at a specific level, such as changing the brightness.
Request	A request for information, such as what is the current brightness setting.

Message type	Description
Reply	Returns the data in response to a request or as confirmation of a command.

Message structure

Understand the components of an ASCII command.

Regardless of message type or origin, all messages use the same basic format and code. Opening and closing round brackets (parentheses) surround each message.

Message element	Description
Parentheses	Commands are enclosed by parentheses (). If a start character is received before an end character of the previous message, the partial (previous) message is discarded.
Prefix characters (optional)	Acknowledges the projector has responded or increases message integrity when added before the three-character function code. • Number symbol (#)—Request a full acknowledgment. A full acknowledgment sends an echo of the message as a reply from the projector when it finishes processing the command. Do not include a full acknowledgment in a request message.
Function code	The primary projector function being queried or modified. Each function code is represented by a three-character, upper or lower case ASCII code (A-Z). The function code appears after the first parenthesis. If a command does not include a subcode, a space between the function code and the first parameter (or special character) is optional.
+subcode	The secondary projector function being queried or modified. Each subcode is represented by a four-character, upper or lower case ASCII code (A-Z and 0-9). The subcode appears after the function code, and it is separated from the function code with a plus symbol (+). If a subcode is not included, the plus symbol is not required. If a command includes a subcode, a space between the subcode and the first parameter (or special character) is optional.
Request and reply symbols	The question mark symbol (?) appears after the function code when the controller requests projector information. An exclamation mark (!) appears after the function code when the projector responds to a request. Do not include a question or exclamation mark when creating a SET command.

Error messages

If a command cannot be performed, a descriptive error identifying the problem appears.

For example, the following message indicates a syntax error:

```
(ITP) - (65535 00000 ERR00005 "ITP: Too Few Parameters")
```

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Serial API commands

The Christie HS Series 2K commands can be used to modify product settings.

ADR–Projector Address

Sets or queries the device address.

This command also helps to identify where a response or asynchronous message originates from. Generally, this command is used for projectors that are daisy-chained together using the RS232 style communication.

The projector responds to IR remotes set to the same address as the projector or to IR remotes set to address 0.

Commands

Command		Values
ADR?	Checks the current projector address. (Read-only)	—
ADR <value>	Sets the projector address to <value>.	0 to 9 0 (Default)

Examples

Set the projector address 0:

```
(ADR 0)
```

AIG–Auto Image

Sets the timing detection mode to support additional PC timings.

When the projected picture is not completed, use to adjust the picture.

Commands

Command	Description	Values
AIG?	Returns the timing detection mode. (Read-only)	—
AIG <0 | 1>	Sets the timing detection mode. Some 4:3 input sources are not recognized in Wide mode, for example, 1400 x 1050. Use Normal mode for these sources.	0 = Normal 1 = Wide (Default)

Examples

Set the timing detection mode to Normal: `(AIG 0)`
Set the timing detection mode to Wide: `(AIG 1)`

APW–Auto Power On

Automatically turns on the projector when electrical power is connected.

Commands

Command	Description	Values
APW <0 | 1>	Automatically powers up the projector to the on state.	0 = Disables auto power up (Default) 1 = Enables auto power up

Examples

Turn off auto power: `(APW 0)`
Turn on auto power: `(APW 1)`

ASH–Auto Shutdown

Powers off the projector after a set period of time.

If an active signal is received before the projector powers down, the image is displayed.

Commands

Command	Description	Values
ASH <value>	Enables or disables auto shutdown.	0 = Turns off auto shutdown (Default) 1 = Activates auto shutdown after five minutes 2 = Activates auto shutdown after 10 minutes 3 = Activates auto shutdown after 15 minutes 4 = Activates auto shutdown after 20 minutes 5 = Activates auto shutdown after 25 minutes 6 = Activates auto shutdown after 30 minutes

Examples

Turn off auto shutdown: `(ASH 0)`
Activate auto shutdown after ten minutes: `(ASH 2)`

AWF–Auto Warp Filter

Automatically corrects the distorted image.

Image distortion is caused by projection to a curved surface or by lens distortion.

Commands

Command	Description	Values
AWF <0 | 1>	Enables or disables automatically applying a preset warp filter for image distortion correction.	0 = Disables automatic warping 1 = Enables automatic warping (Default)

Examples

Disable automatic applying of a preset warp filter: `(AWF 0)`
Enable automatic applying of a preset warp filter: `(AWF 1)`

BAC–Backup Restore

Saves and restores Christie HS Series 2K settings to and from a backup file.

Commands

Command	Description	Values
BAC+REST	Restores the Christie HS Series 2K settings from a backup file.	—
BAC+SAVE	Saves Christie HS Series 2K settings to a backup file.	—

Examples

Restore Christie HS Series 2K settings from a backup file: `(BAC+REST)`

Save Christie HS Series 2K settings to a backup file: `(BAC+SAVE)`

BDR–Baud Rate

Sets the baud rate for a serial communications port.

Commands

Command	Description	Values
BDR?	Returns the baud rate for the serial port. (Read-only)	—
BDR <value>	Sets the baud rate for the serial port.	0 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 14400 5 = 19200 6 = 38400 7 = 57600 8 = 115200 (Default)

Examples

Get the baud rate for the serial port:
`(BDR?)`
Result:
`(BRD! "115200")`

Set the baud rate on port A to 115200 bits per second: `(BDR+PRTA 8)`

BGC–Base Gamma Curve

Selects a gamma correction curve.

Commands

Command	Description	Values
BGC <value>	Selects a gamma correction curve.	0 = Video input 1 = Film input 2 = Bright content 3 = Computer input (CRT)

Command	Description	Values
		4 = DICOM

Examples

Select a gamma correction curve for film input: `(BGC 1)`
Select a gamma correction curve for bright content: `(BGS 2)`

BLD–Apply Blend Settings

Applies previously saved blend settings to the projector.

Commands

Command	Description	Values
BLD?	Returns the blend setting that is applied to the projector.	—
BLD <value>	Applies previously saved blend setting to the projector.	0 (Default) 1 to 4 = Selects saved blend settings

Examples

Disable blending: `(BLD 0)`
Use saved blend setting #3: `(BLD 3)`

BLS–Save Blend Settings

Saves the geometry correction after doing blending.

Commands

Command	Description	Values
BLS <value>	Saves the geometry correction after doing blending.	1 to 4 = Saves geometry correction to one of four blend settings 1 (Default)

Examples

Save the geometry correction to blend setting #4: `(BLS 4)`

BOG–Blue Gain

Adds an offset to input blue gain settings of an image.

Adjusting this setting also affects the black and white components of an image.

Commands

Command	Description	Values
BOG <value>	Sets the blue gain value.	0 to 100 50 (Default)

Examples

Set the blue gain value to 50: `(BOG 50)`

BOO–Blue Offset

Adjusts the blue offset of an image.

Adjusting this setting also affects the black and white components of an image.

Commands

Command	Description	Values
BOO <value>	Sets the blue offset value.	0 to 100 50 (Default)

Examples

Set the blue offset value to 50: `(BOO 50)`

BRT–Brightness

Adjust the intensity of the image.

Commands

Command	Description	Values
BRT <value>	Adjusts the intensity of the image.	0 to 100 50 (Default)

Examples

Set the intensity of the image to 50: `(BRT 50)`

BSS–Blank on Signal Switch

Enables or disables blanking the screen before timing is stable when changing the source.

Commands

Command	Description	Values
BSS <0 | 1>	Enables or disables the signal switch.	0 = Disables blanking the screen (Default) 1 = Enables blanking the screen before timing is stable when changing the source

Examples

Disable blanking the screen: `(BSS 0)`
Enable blanking the screen before timing is stable when changing the source: `(BSS 1)`

CCA–Color Matching

Defines the hue of each primary color component (red, green, blue, and white).

Commands

Command	Description	Values
CCA+BLUG <value>	Specifies the blue levels of gain.	0 to 254 127 (Default)

Command	Description	Values
CCA+BLUH <value>	Specifies the blue levels of hue.	0 to 254 127 (Default)
CCA+BLUS <value>	Specifies the blue levels of saturation.	0 to 254 127 (Default)
CCA+BOFW <value>	Manually adjusts the blue portion of white.	0 to 1000 0 (Default)
CCA+BRTD	Resets the blue color settings to their defaults.	—
CCA+CRTD	Resets the cyan color settings to their defaults.	—
CCA+CYAH <value>	Specifies the cyan levels of hue.	0 to 254 127 (Default)
CCA+CYAG <value>	Specifies the cyan levels of gain.	0 to 254 127 (Default)
CCA+CYAS <value>	Specifies the cyan levels of saturation.	0 to 254 127 (Default)
CCA+GREG <value>	Specifies the green levels of gain.	0 to 254 127 (Default)
CCA+GREH <value>	Specifies the green levels of hue.	0 to 254 127 (Default)
CCA+GRES <value>	Specifies the green levels of saturation.	0 to 254 127 (Default)
CCA+GRTD	Resets the green color settings to their defaults.	—
CCA+HSGE <0 | 1>	Turns hue, saturation, and gain (HSG) adjustments. The HSG function independently controls each of the color regions R, G, B, C, M, Y, and W.	0 = Turns off HSG adjustments (Default) 1 = Turns on HSG adjustments
CCA+MAGG <value>	Specifies the magenta levels of gain.	0 to 254 127 (Default)
CCA+MAGH <value>	Specifies the magenta levels of hue.	0 to 254 127 (Default)
CCA+MAGS <value>	Specifies the magenta levels of saturation.	0 to 254 127 (Default)
CCA+MHTP <0 | 1>	Turns automatic test patterns for HSG adjustment items on or off.	0 = Turns off automatic test patterns 1= Turns on automatic test patterns (Default)
CCA+MRTD	Resets the magenta color settings to their defaults.	—

Command	Description	Values
CCA+REDG <value>	Specifies the red levels of gain.	0 to 254 127 (Default)
CCA+REDH <value>	Specifies the red levels of hue.	0 to 254 127 (Default)
CCA+REDS <value>	Specifies the red levels of saturation.	0 to 254 127 (Default)
CCA+RRTD	Resets the red color settings to their defaults.	—
CCA+WALL <0 | 1 | 2>	Sets the wall color so the projector can enhance the color performance customized for the specific wall.	0 = White (Default) 1 = Gray 130 2 = Light yellow
CCA+WHBG <value>	Specifies the blue levels of white gain.	0 to 254 127 (Default)
CCA+WHGG <value>	Specifies the green levels of white gain.	0 to 254 127 (Default)
CCA+WHRG <value>	Specifies the red levels of white gain.	0 to 254 127 (Default)
CCA+WRTD	Resets the white gains settings to their defaults.	—
CCA+YELG <value>	Specifies the yellow levels of gain.	0 to 254 127 (Default)
CCA+YELH <value>	Specifies the yellow levels of hue.	0 to 254 127 (Default)
CCA+YELS <value>	Specifies the yellow levels of saturation.	0 to 254 127 (Default)
CCA+YRTD 1	Resets the yellow color settings to their defaults.	1

Examples

Set the red level of hue to 120: `(CCA+REDH 120)`
Turn on automatic test patterns for HSG adjustments: `(CCA+MHTP 1)`
Set the wall color to white: `(CCA+WALL 1)`

CCI–Color Temperature

Applies a predefined color temperature value to the input signal.

Commands

Command	Description	Values
CCI <value>	Applies a color temperature to the input signal.	0 = Warmest 1 = Warm 2 = Cool (Default)

Examples

Apply the warmest color temperature: `(CCI 0)`
Apply the cool color temperature: `(CCI 2)`

CEL–Ceiling Mount Setting

Changes the image orientation of ceiling mounted projectors.

Commands

Command	Description	Values
CEL <value>	Changes the image orientation of ceiling mounted projectors.	0 = Turns off the ceiling mount setting 1 = Turns on the ceiling mount setting and turns the image upside down 2 = Automatically adjusts image orientation to the projector position (Default)

Examples

Turn off the ceiling mount setting: `(CEL 0)`
Turn on the ceiling mount setting and turns the image upside down: `(CEL 1)`
Automatically adjust the image orientation to the projector position: `(CEL 2)`

CLR–Color

Adjusts the saturation (amount) of color in a video image.

Commands

Command	Description	Values
CLR <value>	Sets the color saturation value.	0 to 100 50 (Default)

Examples

Set the color saturation value to 50:

```
(CLR 50)
```

CNR–4-Corner Geometry Correction

Fits an image in an area defined by x and y coordinates.

Commands

Command	Description	Values
CNR+BLCX <value>	Applies a bottom left horizontal adjustment, in pixels.	0 to 120 0 (Default)
CNR+BLCY <value>	Applies a bottom left vertical adjustment, in pixels.	0 to 80 0 (Default)
CNR+BRCX <value>	Applies a bottom right horizontal adjustment, in pixels.	0 to 120 0 (Default)
CNR+BRCY <value>	Applies a bottom right vertical adjustment, in pixels.	0 to 80 0 (Default)
CNR+RSET 1	Resets the adjustments to the defaults.	1
CNR+TLCX <value>	Applies a top left horizontal adjustment, in pixels.	0 to 120 0 (Default)
CNR+TLCY <value>	Applies a top left vertical adjustment, in pixels.	0 to 80 0 (Default)
CNR+TRCX <value>	Applies a top right horizontal adjustment, in pixels.	0 to 120 0 (Default)
CNR+TRCY <value>	Applies a top right vertical adjustment, in pixels.	0 to 80 0 (Default)

Examples

Set the top-left vertical adjustment value to 20:

```
(CNR+TLCY 20)
```

CON–Contrast

Sets the image contrast by adjusting the gain applied to the input signal.

This command adjusts the degree of difference between the lightest and darkest parts of the image and changes the amount of black and white in the image.

Commands

Command	Description	Values
CON <value>	Sets the degree of difference between the lightest and darkest parts of the image and changes the amount of black and white in the image.	0 to 100 50 (Default)

Examples

Set the contrast value to 50:

```
(CON 50)
```

CSP–Color Space

Specifies which color space the input signal uses.

This command is only useful for analog signals and certain digital sources.

Commands

Command	Description	Values
CSP <value>	Selects the color space for the input signal.	0 = Auto For RGB: 1 = RGB Full (Default) 2 = RGB Limited For YUV: 3 = REC709 (Default) 4 = REC601

Examples

Select the RGB color space for the input signal: `(CSP 1)`

CWI–Wheel Index Setting

Adjusts the phosphor and filter wheels.

This command can only be run when the projector is in service mode.

Commands

Command	Description	Values
CWI+PF2x <index>	Sets the speed of the phosphor wheel index to 2x.	0 to 719
CWI+FT2x <index>	Sets the speed of the filter wheel index to 2x.	
CWI+PF3x <index>	Sets the speed of the phosphor wheel index to 3x.	
CWI+FT3x <index>	Sets the speed of the filter wheel index to 3x.	

Examples

Set the speed of phosphor wheel index 26 to 2x: `(CWI+PF2X 26)`

CWS–Color Wheel Speed

Increases the color wheel speed.

Commands

Command	Description	Values
CWS <0 | 1>	Increases the color wheel speed.	0 = Increases the color wheel speed to twice the current value 1 = Increases the color wheel speed to three times the current value (Default)

Examples

Set the color wheel speed to twice the current value: `(CWS 0)`
Set the color wheel speed to three times the current value: `(CWS 1)`

DEF–Factory Defaults

Resets Christie HS Series 2K to its factory default values.

Commands

Command	Description	Values
DEF 111	Restores all settings to the factory defaults. To prevent accidental use of this command, the number 111 must follow the command.	111

Examples

Reset Christie HS Series 2K to factory defaults:

```
(DEF 111)
```

DIM–Contrast Enhancement

Enables or disables the automatic adjustment for the black values of the displayed image.

Commands

Command	Description	Values
DIM <value>	Enables or disables dynamic black and real black.	0 = Turns off dynamic black (Default) 1 = Turns on dynamic black 2 = Turns on real black

Examples

Turn on dynamic black:

```
(DIM 1)
```

DLL–Dynamic Black Level

Adjusts the light source when the brightness level of the current content gets lower than the set value.

Commands

Command	Description	Values
DLL <value>	Adjusts the light source when the brightness level of the current content gets lower than	50 to 100 100 (Default)

Command	Description	Values
	the set value. The higher the value, the larger the range to adjust the light source.	

Examples

Set the level to 60% of constant brightness: `(DLL 60)`
Set the level to 90% of constant brightness: `(DLL 90)`

DRB–Real Black

Enables or disables the Real Black function, which turns off the laser light for black content.

Commands

Command	Description	Values
DRB <0 | 1>	Enables or disables the Real Black function.	0 = Enables the Real Black function 1 = Disables the Real Black function (Default)

Examples

Disable the Real Black function: `(DRB 0)`
Enable the Real Black function: `(DRB 1)`

DSH–Digital Horizontal Shift

Moves the projector image left or right. If the image is not zoomed out (Digital Zoom), this command is disabled.

Commands

Command	Description	Values
DSH <value>	Moves the projector to the left or right.	0 to 100 0 = Moves the display area to the extreme left 50 = Centers the display area horizontally (Default) 100 = Moves the display area to the extreme right

Examples

Center the display area horizontally: `(DSH 50)`

DSV–Digital Vertical Shift

Moves the projector image up or down. If the image is not zoomed out (Digital Zoom), this command is disabled.

Commands

Command	Description	Values
DSV <value>	Moves the projector to the up or down.	0 to 100 0 = Moves the display area to the top 50 = Centers the display area vertically (Default) 100 = Moves the display area to the bottom

Examples

Center the display area vertically: `(DSV 50)`

DTL–Detail

Selects the edge clarity of the image.

Commands

Command	Description	Values
DTL <value>	Selects the edge clarity of the image.	0 = Maximum 1 = High 2 = Normal (Default) 3 = Low 4 = Minimum

Examples

Set the edge clarity of the image to high: `(DTL 1)`

DZH–Digital Horizontal Zoom

Changes the size of the horizontal display area.

If the display area has been resized with this setting, use the DSH–Digital Horizontal Shift and DSV–Digital Vertical Shift commands to readjust the image.

Commands

Command	Description	Values
DZH <value>	Changes the size of the horizontal display area.	50% to 400% 100% (Default)

Examples

Change the horizontal size of the display area to 100%:

```
(DZH 100)
```

DZV–Digital Vertical Zoom

Changes the size of the vertical display area.

If the display area has been resized with this setting, use the DSH–Digital Horizontal Shift and DSV–Digital Vertical Shift commands to readjust the image.

Commands

Command	Description	Values
DZV <value>	Changes the size of the vertical display area.	50% to 400% 100% (Default)

Examples

Change the vertical size of the display area to 100%:

```
(DZV 100)
```

EBL–Edge Blending

Creates a single image from a multi-projector installation.

Commands

Command	Description	Values
EBL+BTME <0 | 1>	Enables or disables edge blending of the bottom edge.	0 = Disables edge blending of the bottom edge (Default) 1 = Enables edge blending of the bottom edge
EBL+BTMS <value>	Sets the starting point of the bottom edge blend.	0 to 200 pixels 0 (Default)
EBL+BTMW <value>	Sets the height of the bottom edge blend.	4 to 500 pixels 4 (Default)
EBL+GAMA	Sets the gamma value for blending.	0 = 1.8 1 = 1.9 2 = 2.0 3 = 2.1 4 = 2.2 (Default) 5 = 2.3 6 = 2.4
EBL+LFTE <0 | 1>	Enables or disables edge blending of the left edge.	0 = Disables edge blending of the left edge (Default) 1 = Enables edge blending of the left edge
EBL+LFTS <value>	Sets the starting point of the left edge blend.	0 to 200 pixels 0 (Default)
EBL+LFTW <value>	Sets the height of the left edge blend.	4 to 800 pixels 4 (Default)
EBL+RHTE <0 | 1>	Enables or disables edge blending of the right edge.	0 = Disables edge blending of the right edge (Default) 1 = Enables edge blending of the right edge
EBL+RHTS <value>	Sets the starting point of the right edge blend.	0 to 200 pixels 0 (Default)
EBL+RHTW <value>	Sets the height of the right edge blend.	4 to 800 pixels 4 (Default)
EBL+TOPE <0 | 1>	Enables or disables edge blending of the top edge.	0 = Disables edge blending of the top edge (Default) 1 = Enables edge blending of the top edge
EBL+TOPS <value>	Sets the starting point of the top edge blend.	0 to 200 pixels 0 (Default)

Command	Description	Values
EBL+TOPW <value>	Sets the height of the top edge blend.	4 to 500 pixels 4 (Default)

Examples

Turn on the bottom edge blending: `(EBL+BTME 1)`
Set the left edge blending starting point to 150 pixels: `(EBL+LFTS 150)`
Set the top blend height to 200 pixels: `(EBL+TOPW 200)`

ERR–Error Log

Displays or clears the error log.

Commands

Command	Description	Values
ERR?	Shows the error log. (Read-only)	—
ERR+CLER 1	Clears the error log.	1

Examples

Show the error log: `(ERR?)`
Clear the error log: `(ERR+CLER 1)`

FAN–Fan Info

Displays the information of each fan.

Commands

Command	Description	Values
FAN+FA01?	Displays information for fan 1. (Read-only)	—
FAN+FA02?	Displays information for fan 2. (Read-only)	—
FAN+FA03?	Displays information for fan 3. (Read-only)	—

Command	Description	Values
FAN+FA04?	Displays information for fan 4. (Read-only)	—
FAN+FA05?	Displays information for fan 5. (Read-only)	—
FAN+FA06?	Displays information for fan 6. (Read-only)	—
FAN+FA07?	Displays information for fan 7. (Read-only)	—
FAN+FA08?	Displays information for fan 8. (Read-only)	—
FAN+FA09?	Displays information for fan 9. (Read-only)	—
FAN+FA10?	Displays information for fan 10. (Read-only)	—

Examples

Display the information for the fan 5:

```
(FAN+FA05)
```

FCS–Focus

Adjusts the focus of the image.

Commands

Command	Description	Values
FCS <position>	Adjusts the lens focus.	n = Increases the focus of the lens by one p = Decreases the focus of the lens by one

FCT–Serial Number

Sets the serial number for the projector.

Commands

Command	Description	Values
FCT+SERN "AAABYWNNN"	Sets the serial number for the projector.	AAABYWNNN = Serial number

FDY–Frame Delay

Corrects asynchronous displaying of images for 3D blending.

Commands

Command	Description	Values
FDY <value>	Sets the value to correct asynchronous displaying of images for 3D blending.	1 to 200 (by timing) 1 (Default)

Examples

Set the frame delay to 100: `(FDY 100)`

FKC–4K Compatible

Enables or disables 4K compatibility.

Commands

Command	Description	Values
FKC <0 | 1>	Enables or disables 4K compatibility.	0 = Enables 4K compatibility 1 = Disables 4K compatibility (Default)

Examples

Enable 4K compatibility: `(FKC 0)`
Disable 4K compatibility: `(FKC 1)`

FRZ–Image Freeze

Freezes the active video or test pattern to allow a detailed examination of a single frame of an otherwise moving image.

Commands

Command	Description	Values
FRZ <0 | 1>	Freezes the active video or test pattern.	0 = Disables freezing of current video (Default) 1 = Freezes the current video

Examples

Freeze the image: `(FRZ 1)`

FVI–Firmware Version Information

Displays the firmware information such as software version, LAN version, formatter version, and so on.

Commands

Command	Description	Values
FVI?	Displays the firmware information.	—

Examples

Return the firmware information: `(FVI?)`

GOG–Green Gain

Adds an offset to input green gain settings of an image.

Adjusting this setting also affects the black and white components of an image.

Commands

Command	Description	Values
GOG <value>	Sets the green gain value.	0 to 100 50 (Default)

Examples

Set the green gain value to 50: `(GOG 50)`

GOO–Green Offset

Adjusts the green offset of an image.

Adjusting this setting also affects the black and white components of an image.

Commands

Command	Description	Values
GOO <value>	Sets the green offset value.	0 to 100 50 (Default)

Examples

Set the green offset value to 50:

```
(GOO 50)
```

GOR–RGB Gain/Offset Reset

Resets red, green, and blue gain and offset values.

Commands

Command	Description	Values
GOR 1	Resets the red, green, and blue offset values to their default settings.	1

Examples

Reset the offset values to their default values:

```
(GOR 1)
```

HAR–Reset Hue, Saturation, and Gain to Default

Resets the hue, saturation, and gain adjustments to the default settings.

Commands

Command	Description	Values
HAR 1	Resets the hue, saturation, and gain adjustments to the default settings	1

Examples

Reset the hue, saturation, and gain adjustments to the default:

```
(HAR 1)
```

HAT–High Altitude

Increases the fan speeds to improve cooling when the projector is installed in a high altitude location.

Commands

Command	Description	Values
HAT <0 | 1>	Enables or disables high altitude functionality.	0 = Turns off high altitude functionality for altitudes >/= 2000 m (Default) 1 = Turns on high altitude functionality for altitudes below 2000 m

Examples

Turn on high altitude functionality:

```
(HAT 1)
```

HKS–Hot Key Settings

Assigns different functions to the infrared remote hot key.

Commands

Command	Description	Values
HKS <value>	Assigns different functions to the infrared remote hot keys.	0 = Adjusts the aspect ratio 1 = Displays the picture settings 2 = Resets to the default values 3 = Selects the edge clarity of the image 4 = Enables or disables dynamic black and real black 5 = Sets the light source and intensity modes 6 = Freezes the image 7 = Display projector information 8 = Disables warping and blending

Examples

Set the infrared remote hot key to freeze the screen:

```
(HKA 6)
```

HOR–Horizontal Position

Moves the horizontal position of the image left or right.

When applying this function, some of the active area is blank. Increase the value to move the active image to the right.

Commands

Command	Description	Values
HOR?	Returns the horizontal position value on the main video. (Read-only)	—
HOR <value>	Sets the horizontal position for the main image.	0 to 100 50 (Default)

Examples

Move the starting point of the input capture to 50:

```
(HOR 50)
```

HPC–Horizontal Pincushion

Corrects the distortion created when the left and right sides of the image bends inwards to the center of the display.

Commands

Command	Description	Values
HPC <value>	Adjusts the horizontal distortion value.	0 to 100 50 (Default)

Examples

Adjust the horizontal distortion to the default:

```
(HPC 50)
```

ICI–Communications Info

Displays the current settings for the communication information such as the projector's IP address, subnet, and so on.

Returns communications information in read-only mode.

Commands

Command	Description	Values
ICI?	Displays the current settings for the communication information.	—

Examples

Return the communication information:

```
(ICI?)
```

ILI–Light Source Info

Displays the light source information such as projector hours and laser diode (LD) hours.

Commands

Command	Description	Values
ILI?	Displays the light source information.	—

Examples

Return the light source information:

```
(ILI?)
```

IRC–IR Control

Enables or disables the IR sensors.

Commands

Command	Description	Values
IRC+FRNT <0 | 1>	Enables or disables the signal from the front IR sensor.	0 = Disables the signal from the front IR sensor 1 = Enables the signal from the front IR sensor (Default)
IRC+HDBT <0 | 1>	Enables or disables the signal from the HDBaseT box.	0 = Disables the signal from the HDBaseT box 1 = Enables the signal from the HDBaseT box (Default)
IRC+TOPP <0 | 1>	Enables or disables the signal from the top IR sensor.	0 = Disables the signal from the top IR sensor 1 = Enables the signal from the top IR sensor (Default)

Examples

Enable the signal from the front IR sensor: `(IRC+FRNT 1)`
Disable the sensor from the HDBaseT box: `(IRC+HDBT 0)`
Disable the signal from the top IR sensor: `(IRC+TOPP 0)`

ITP–Test Pattern

Displays a test pattern.

Commands

Command	Description	Values
ITP <pattern>	Displays a test pattern on the display.	0 = Off (Default) 1 = Grid 2 = White 3 = Black 4 = Checkerboard 5 = Color bar 6 = Red 7 = Green 8 = Blue 9 = Yellow 10 = Magenta 11 = Cyan 12 = Boresight 13 = FullScreen

Examples

Disable test patterns and revert to the previous input signal: `(ITP 0)`
Set the test pattern to the grid pattern: `(ITP 1)`

KBL–Keypad Backlight

Determines if the keypad is backlit or not and for how long.

Commands

Command	Description	Values
KBL <value>	Sets how long the keypad stays backlit.	0 = Stays backlit for 5 seconds (Default) 1 = Stays backlit for 10 seconds 2 = Stays backlit for 20 seconds 3 = Stays backlit for 30 seconds 4 = Keeps the keypad constantly backlit 5 = Disables the backlight feature

Examples

Backlight the keypad for 20 seconds: `(KBL 2)`
Disable the backlight feature: `(KBL 0)`

KEY–Key Mode Emulator

Uses key codes to emulate button presses on the infrared remotes or wired keypads.

Commands

Command	Description	Values
KEY <number>	Sends the command associated with the key to the product. (Read-only)	number = Menu key number

Examples

Send menu key 17 to the projector and displays the menu on the on-screen display: `(KEY 17)`

LCB–Lens Motor Calibration

Calibrates the lens mount system for each of the four lens axes (horizontal, vertical, zoom, and focus) to determine home positions, the motor travel ranges, and the motor backlash values.

Commands

Command	Description	Values
LCB+HOME 1	Moves the lens to the center and horizontal and vertical position. Zoom and focus are not affected.	1
LCB+LOCK <0 | 1>	Locks the zoom, focus, horizontal, and vertical lens motors. This helps to prevent accidental lens position changes in multi-projector installations.	0 = Allows movement of the zoom, focus, horizontal, and vertical lens motors (Default) 1 = Locks the zoom, focus, horizontal, and vertical lens motors

Examples

Center the lens: `(LCB+HOME 1)`
Lock the zoom, focus, horizontal, and vertical lens motors: `(LCB+LOCK 1)`

LCE–Last Serial Command Error

Displays the last serial command error.

Commands

Command	Description	Values
LCE?	Returns the last serial command error. (Read-only)	—

LDI–Laser Diode Information

Displays the information of each laser diode bank including its voltage and temperature.

Commands

Command	Description	Values
LDI+LD01?	Displays the voltage, current, and temperature status for laser diode 1. (Read-only)	—
LDI+LD02?	Displays the voltage, current, and temperature status for laser diode 2. (Read-only)	—

Command	Description	Values
LDI+LD03?	Displays the voltage, current, and temperature status for laser diode 3. (Read-only)	—
LDI+LD04?	Displays the voltage, current, and temperature status for laser diode 4. (Read-only)	—
LDI+LD05?	Displays the voltage, current, and temperature status for laser diode 5. (Read-only)	—
LDI+LD06?	Displays the voltage, current, and temperature status for laser diode 6. (Read-only)	—
LDI+LDO7?	Displays the voltage, current, and temperature status for laser diode 7. (Read-only)	—
LDI+LD08?	Displays the voltage, current, and temperature status for laser diode 8. (Read-only)	—
LDI+LD09?	Displays the voltage, current, and temperature status for laser diode 9. (Read-only)	—
LDI+LD10?	Displays the voltage, current, and temperature status for laser diode 10. (Read-only)	—
LDI+LD11?	Displays the voltage, current, and temperature status for laser diode 11. (Read-only)	—
LDI+LD12?	Displays the voltage, current, and temperature status for laser diode 12. (Read-only)	—
LDI+LD13?	Displays the voltage, current, and temperature status for laser diode 13. (Read-only)	—
LDI+LD14	Displays the voltage, current, and temperature status for laser diode 14. (Read-only)	—

Examples

Display the information for the laser diode bank 1: `(LDI+LD1)`

LET–Lens Type

Sets the correct lens type to have the correct offset range.

Commands

Command	Description	Values
LET <value>	Sets the correct lens type to have the correct offset range.	0 = Undefined lens 1 = 1.2-1.5:1 zoom lens 2 = 1.5-2.0:1 zoom lens 3 = 2.0-4.0:1 zoom lens 4 = 4.0-7.2:1 zoom lens

Examples

Set the lens type to the 1.2-1.5:1 zoom lens: `(LET 1)`
Set the lens type to the 1.5-2.0:1 zoom lens: `(LET 3)`

LHL–Lens Shift Left

Adjusts the horizontal location of the lens left.

Commands

Command	Description	Values
LHL <value>	Adjusts the horizontal location of the lens left.	0 to 100

Examples

Adjust the horizontal location of the lens left 20 steps: `(LHL 20)`
Adjust the horizontal location of the lens left 70 steps: `(LHL 70)`

LHR–Lens Shift Right

Adjusts the horizontal location of the lens right.

Commands

Command	Description	Values
LHR <value>	Adjusts the horizontal location of the lens right.	0 to 100

Examples

Adjust the horizontal location of the lens right 30 steps: `(LHR 30)`
Adjust the horizontal location of the lens right 80 steps: `(LHR 80)`

LMA–Lens Memory Apply Position

Applies the lens position according to the chosen lens memory position.

Commands

Command	Description	Values
LMA <value>	Applies the lens position according to the chosen lens memory position.	0 to 4

Examples

Set the lens position to the value stored in record 2: `(LMA 1)`
Set the lens position to the value stored in record 5: `(LET 4)`

LMS–Lens Memory Save Current Position

Saves the current lens position to the projector memory.

Commands

Command	Description	Values
LMS <value>	Saves the current lens position to the projector memory.	0 to 4

Examples

Save the lens position to the value stored in record 1: `(LMS 0)`
Save the lens position to the value stored in record 4: `(LET 3)`

LOC–Localization Language

Sets the language for the on-screen display (OSD).

Commands

Command	Description	Values
LOC+LANG <value>	Sets the on-screen display language.	0 = English (Default) 1 = Simplified Chinese

Command	Description	Values
		2 = French 3 = German 4 = Italian 5 = Japanese 6 = Korean 7 = Russian 8 = Spanish

Examples

Set the language to French: `(LOC+LANG 2)`
Set the language to Russian: `(LOC+LANG 7)`

LOL–Lights Out Signal Level

Sets the signal level for lights out for the RealBlack feature.

Commands

Command	Description	Values
LOL <value>	Sets the lights out signal level.	0 to 5 0 (Default)

Examples

Set the signal level to 4: `(LOL 4)`

LOT–Lights Out Timer

Sets a timer for lights out for the RealBlack feature.

Commands

Command	Description	Values
LOT <value>	Sets the lights out timer.	0 to 20 0 (Default)

Examples

Set a timer to turn off the lights in 20 seconds: `(LOT 20)`

LPM–Light Source Mode

Sets the light source and intensity modes.

Commands

Command	Description	Values
LPM <value>	Sets the light source mode.	0 = Constant Power—Specifies the power level supplied (Default) 1 = Constant Intensity—Maintains a specific brightness level over time 2 = Eco Mode—Maintains brightness at 80% for as long as possible 3 = Eco Mode—Maintains brightness at 50% for as long as possible 4 = Rental Mode—Adjusts to the lowest fan speed and switches the laser diode power to the minimum setting

Examples

Maintain the light source with 50% brightness for as long as possible: `(LPM 3)`

LPP–Constant Power

Sets the value of the laser diode power.

Commands

Command	Description	Values
LPP <power>	Sets the value of the laser diode power.	1 (30%) to 100 (100%) 100 (Default)

Examples

Set the laser diode power to 30%: `(LPP 1)`

LRR–L/R Reference

Sets the left/right (L/R) reference for the projector.

Commands

Command	Description	Values
LRR <0 | 1>	Sets the left/right (L/R) reference for the projector.	0 = 1st Frame—Sets the first frame from the input source as the left reference (Default) 1 = Field GPIO—Sets the field GPIO of the input source as the left and right reference

Examples

Set the first frame from the input source as the left reference: `(LRR 0)`
Set the field GPIO of the input source as the left and right reference: `(LRR 1)`

LSE–Last System Error

Retrieves the last recorded system error.

Commands

Command	Description	Values
LSE?	Displays the last system error. (Read-only)	1 = The light source did not engage after five attempts 3 = The light source went out unexpectedly 4 = Fan failure 5 = Over temperature

LVD–Lens Shift Down

Adjusts the vertical location of the lens down.

Commands

Command	Description	Values
LVD <value>	Adjusts the vertical location of the lens down.	0 to 100

Examples

Adjust the vertical location of the lens down 20 steps: `(LVD 20)`
Adjust the vertical location of the lens down 70 steps: `(LVD 70)`

LVU–Lens Shift Up

Adjusts the vertical location of the lens up.

Commands

Command	Description	Values
LVU <value>	Adjusts the vertical location of the lens up.	0 to 100

Examples

Adjust the vertical location of the lens up 30 steps: `(LVU 30)`
Adjust the vertical location of the lens up 80 steps: `(LVU 80)`

MBE–Message Box Enable

Enables or disables the displaying of groups of message boxes on the on-screen display.

Commands

Command	Description	Values
MBE+USER <0 | 1>	Enables or disables displaying message boxes directly triggered by user actions, for example gamma or lens control message boxes.	0 = Enables displaying message boxes directly triggered by user actions 1 = Disables displaying message boxes directly triggered by user actions (Default)

Examples

Set user message boxes to not be displayed:
`(MBE+USER 1)`
Result:
`OFF`

Set user message boxes to be displayed:
`(MBE+USER 0)`
Result:
`ON`

MDT–Mode Adjustment

Adjusts the horizontal and vertical start position for a signal in the EDID timing table and record the values in the system to override the timing table.

Run a Save command to keep the settings before exiting. To revert to the original timing table settings, manually clear each setting. You cannot use the Factory Defaults command to clear these settings.

Commands

Command	Description	Values
MDT?	Returns the current mode adjustment settings. (Read-only)	—
MDT+CLER <value>	Clears the setting.	One numeric character
MDT+HPOS <value>	Applies a horizontal offset.	Three numeric characters
MDT+RDIX <value>	Sets the record index.	0 to 19 0 (Default)
MDT+SAVE <value>	Saves the settings.	One numeric character
MDT+VPOS <value>	Applies a horizontal offset.	Three numeric characters

Examples

Return the current mode adjustment settings: `(MDT?)`
Clear the MDT settings: `(MDT+CLER 1)`
Apply a horizontal offset to the specified position: `(MDT+HPOS 123)`
Save the MDT settings: `(MDT+SAVE 1)`

MIF–Main (Single) Source Information

Displays the current settings for the main image input.

Commands

Command	Description	Values
MIF+ACTS?	Returns the active source. (Read-only)	—
MIF+APRT?	Returns the aspect ratio. (Read-only)	—
MIF+CLSP?	Returns the color space setting. (Read-only)	—
MIF+HREF?	Returns horizontal refresh information. (Read-only)	—
MIF+PIXC?	Returns the pixel clock settings. (Read-only)	—
MIF+RESL?	Returns the resolution. (Read-only)	—
MIF+SGFT?	Returns the signal format. (Read-only)	—
MIF+SYNC?	Returns the sync type. (Read-only)	—
MIF+VREF?	Returns vertical refresh information. (Read-only)	—

Examples

Return the image resolution:

```
(MIF+RESL?)
```

MNR–MPEG Noise Reduction

Reduces MPEG noise.

MPEG compression causes block noise, which appears like small blocks in the image. The image compression algorithms result in mosquito noise around the sharp edges in the image.

Commands

Command	Description	Values
MNR ?	Returns the level of MPEG noise reduction applied.	—
MNR <value>	Adjusts the level of MPEG noise.	0 = Disables removing MPEG noise 1 = Applies low adjustment for removing MPEG noise 2 = Applies middle adjustment for removing MPEG noise 3 = Applies high adjustment for removing MPEG noise

Examples

Disable removing MPEG noise: `(MNR 0)`
Apply low adjustment for removing MPEG noise: `(MNR 1)`

MSH–Menu Shift Horizontal

Moves on-screen menus and messages horizontally.

Commands

Command	Description	Values
MSH <value>	Moves the on-screen display to the left.	0 to 100 0 (Default)

Examples

Move the on-screen menu to the left: `(MSH 0)`

MSV–Menu Shift Vertical

Changes the vertical position of the menus.

Commands

Command	Description	Values
MSV?	Returns the current vertical position of the main menu. (Read-only)	—
MSV <value>	Sets the vertical position of the menus.	0 to 100 0 (Default)

Examples

Get current vertical position of the main menu:
`(MSV?)`
Result:
`0`

Set the main menu vertical position to 50 pixels from the center: `(MSV 50)`

MTO–Menu Time Out

Adjusts the time for on-screen display to disappear.

Commands

Command	Description	Values
MTO <value>	Sets the time for the on-screen display to disappear.	0 = Off 1 = 1 minute (Default) 2 = 3 minutes

Examples

Never make the on-screen display disappear: `(MTO 0)`
Set the on-screen display to disappear after three minutes: `(MTO 2)`

MWF–Manual Warp Filter

Manually corrects the distorted image.

Image distortion is caused by projection to a curved surface or by lens distortion.

Commands

Command	Description	Values
MWF+HORZ	Adjusts the horizontal filter to correct image distortion.	0 to 9
MWF+VERT	Adjusts the vertical filter to correct image distortion.	

NET–Network Setup

Modifies the network setup for this device.

Commands

Command	Description	Values
NET+DHCP <0 | 1>	Turns DHCP on or off.	0 = Turns on DHCP 1 = Turns off DHCP
NET+ETH0 "<value>"	Modifies Ethernet settings.	value = Ethernet address
NET+GATE "<value>"	Modifies gateway settings.	value = Default gateway

Command	Description	Values
NET+HOST "<value>"	Modifies the projector name.	value = Hostname
NET+MAC0 "<value>"	Modifies the MAC address settings.	value = MAC address
NET+PDNS "<value>"	Modifies the primary DNS.	value = Primary DNS
NET+RSET 1	Returns the projector name, LAN IP address, WLAN IP address, and SNMP settings to their factory defaults. (Read-only)	1
NET+SDNS "<vale>"	Modifies the secondary DNS.	value = Secondary DNS
NET+SETT 1	Applies the network settings.	1
NET+SHOW <0 | 1>	Turns network messages on or off.	0 = Turns off network messages 1 = Turns on network messages
NET+SUB0 "<value>"	Modifies subnet mask settings.	value = Subnet mask

Examples

Turn DHCP off: `(NET+DHCP 1)`
Set the MAC address to 00:E0:47:01:02:3C: `(NET+MAC0 ”00:E0:47:01:02:3C”)`
Turn network messages on: `(NET+SHOW 1)`
Set the Ethernet address to 192.168.000.001: `(NET+ETH0 ”192.168.000.001”)`
Reset to the default settings: `(NET+RSET 1)`
Set the subnet mask to 255.255.255.000: `(NET+SUB0 ”255.255.255.000”)`

NTW–Wireless Network

Modifies the wireless network settings.

Commands

Command	Description	Values
NTW+ENIP "<value>"	Modifies the end IP address for the wireless network.	value = Numeric value
NTW+ETH0 "<value>"	Modifies the IP address for the wireless network.	value = Numeric value

Command	Description	Values
NTW+GATE "<value>"	Modifies gateway settings.	value = Numeric value
NTW+SETT	Applies the WLAN settings.	—
NTW+SLCT <0 | 1>	Turns wireless network on or off.	0 = Turns the wireless network off 1 = Turns the wireless network on
NTW+SSID "<value>"	Modifies the unique wireless network name.	value = Numeric value
NTW+SUB0 "<value>"	Modifies subnet mask settings.	value = Numeric value

Examples

Set the IP address to 192.168.000.001: `(NET+ETH0 ”192.168.000.001”)`
Set the MAC address to 00:E0:47:01:02:3C: `(NET+MAC0 ”00:E0:47:01:02:3C”)`
Turn the wireless LAN on: `(NTW+SLCT 1)`
Set the subnet mask to 255.255.255.000: `(NET+SUB0 ”255.255.255.000”)`

OSD–On Screen Display

Displays or hides the on-screen display.

Commands

Command	Description	Values
OSD?	Returns the status of the on-screen display. (Read-only)	—
OSD <0 | 1>	Enables or disables the on-screen display.	0 = Hides the on-screen display 1 = Displays the on-screen display (Default)

Examples

Get the current state of the on-screen display: `(OSD?)`
Hide the on-screen display: `(OSD 0)`

OST–OSD Transparency

Changes the transparency of on-screen menus and messages.

Commands

Command	Description	Values
OST <value>	Changes the transparency of the menus and messages.	0 to 90 0 (Default)

Examples

Turn off the transparency:

```
(OST 0)
```

PCG–Change Pin

Changes the personal identification number (PIN) on a projector.

Commands

Command	Description	Values
PCG "<00000,NNNNN>"	Replaces the existing PIN number, where: • 00000 = Previous PIN • NNNNN = New PIN	Valid PIN number 12345 (Default)

Examples

Replace the default PIN number with a new PIN:

```
(PCG "12345,78564")
```

PHS–Picture-in-Picture Horizontal Size

Sets the size (width) of the picture-in-picture/picture-by-picture window.

The active portion of the input signal, as determined by blanking controls, is scaled to fit into the picture-in-picture window.

Commands

Command	Description	Values
PHS?	Displays the picture-in-picture size. (Read-only)	—

Command	Description	Values
PHS <value>	Sets the picture-in-picture/picture-by-picture size.	0 = Small 1 = Medium 2 = Large (Default)

Examples

Set the picture-in-picture size to large:

```
(PHS 2)
```

PIF–Projector Information

Displays information about the projector.

This command is only available when the projector is in service mode and is read-only.

Commands

Command	Description	Values
PIF+FWV#?	Returns the version of various components. (Read-only)	1 = F-MCU 2 = S-MCU 3 = M-MCU 4 = L-MCU 5 = K-MCU 6 = LAN 7 = Formatter 8 = HDBaseT A = FPGA 1 B = FPGA 2 C = FPGA 3
PIF+MDLN?	Returns the model name. (Read-only)	—
PIF+NERS?	Returns the native resolution. (Read-only)	—
PIF+SNUM?	Returns the serial number. (Read-only)	—
PIF+WHEE?	Returns the color wheel index. (Read-only)	—

PIP–Picture in Picture

Enables or disables picture-in-picture (PIP)/picture-by-picture (PBP) mode.

Commands

Command	Description	Values
PIP?	Returns the state of the picture-in-picture/ picture-by-picture command. (Read-only)	—
PIP <0 | 1>	Enables or disables the picture-in-picture/ picture-by-picture window.	0 = Disables the picture-in-picture/picture-by-picture video (Default) 1 = Enables the picture-in-picture/picture-by-picture video video

Examples

Return the state of the picture-in-picture/picture-by-picture command: `(PIP?)`
Disable picture-in-picture/picture-by-picture video: `(PIP 0)`
Enable picture-in-picture/picture-by-picture video: `(PIP 1)`

PIV–PIN Protect

Activates password protection on the projector, where a personal identification number (PIN) must be provided before an image can be displayed.

Commands

Command	Description	Values
PIV "XXXXX"	Activates password protection on the projector.	X = 0 to 9 Replace each X with a number from 0 to 9

Examples

Set the PIN to 33445: `(PIV "33445")`

PPP–Main Layout

Chooses a preset location for the picture-in-picture and picture-by-picture window.

Note the following:

- The Location settings adjust the position of the window.
- Blanking is not affected.
- While in split screen mode, several channel controls that resize image are disabled.

Commands

Command	Description	Values
PPP <value>	Selects the picture-in-picture/ picture-by-picture image location.	0 = Places the picture-by-picture image on the left vertical center of the main image (Default) 1 = Places the picture-by-picture image on the top center of the main image 2 = Places the picture-by-picture image on the right vertical center of the main image 3 = Places the picture-by-picture image on the bottom center of the main image 4 = Places the picture-in-picture image on the bottom right of the main image 5 = Places the picture-in-picture image on the bottom left of the main image 6 = Places the picture-in-picture image on the top left of the main image 7 = Places the picture-in-picture image on the top right of the main image

Examples

Set the picture-by-picture image on the bottom of the main image: `(PPP 1)`
Set the picture-by-picture image on the top-left corner of the image: `(PPP 6)`

PPS–Picture-in-Picture/Picture-by-Picture Swap

Swaps the current main and picture-in-picture/picture-by-picture inputs, regardless if valid signals are on either of the inputs.

Commands

Command	Description	Values
PPS	Swaps the main and picture-in-picture/picture-by-picture input.	—

Examples

Swap the main and picture-in-picture/picture-by-picture input.: `(PPS 1)`

PST–Picture Setting

Changes the picture-related settings for the current source to a set of predefined values.

Commands

Command	Description	Values
PST <value>	Optimizes the projector.	0 = Video 1 = Bright (Default) 2 = Enhanced 3 = REC709 4 = DICOM SIM 5 = Blending 6 = User
PST+USER <value>	Stores the current settings to a user profile.	—

Examples

Optimize the projector for bright viewing content: `(PST 1)`
Optimize the projector to display DICOM SIM content: `(PST 4)`

PWR–Power

Changes the power state of the product.

Commands

Command	Description	Values
PWR?	Returns the power settings for the display. (Read-only)	—
PWR <0 | 1>	Turns the projector on or off.	0 = Turns off the projector 1 = Turns on the projector
PWR+STBM<0 | 1>	Places the projector in standby mode when connected to AC power	0 = 0.5 W mode—low power mode 1 = Communication mode—normal power mode (Default)

Examples

Get the projector power status: `(PWR?)`
Place the projector in communication mode: `(PWR+STBM 1)`

PXP–Pixel Phase

Adjusts the phase of the pixel sampling clock relative to the incoming signal.

You can fine tune the sampling point within one pixel. Adjust the Pixel Phase when the image (usually from an RGB source) shows shimmer. If the shimmer is concentrated in vertical bands with little or no shimmer between the bands, the pixel tracking might need adjustment. Pixel Tracking must be set correctly before adjusting Pixel Phase.

The Pixel Phase command can only be set on analog input cards.

Commands

Command	Description	Values
PXP <value>	Sets the pixel phase for the specified value.	0 to 100 50 (Default)

Examples

Set the pixel phase to 50: `(PXP 50)`

RLC–Light Sensor Calibration

Performs a calibration of the light sensor.

A calibration must be performed before using in Rental mode or after a laser diode driver has been replaced.

Commands

Command	Description	Values
RLC <0 | 1>	Performs a light sensor calibration.	0 = Default (Default) 1 = Manual

Examples

Manually perform a light sensor calibration: `(RLC 1)`

ROG–Red Gain

Adds an offset to input red gain settings of an image.

Adjusting this setting also affects the black and white components of an image.

Commands

Command	Description	Values
ROG <value>	Sets the red gain value.	0 to 100 50 (Default)

Examples

Set the red gain value to 50: `(ROG 50)`

ROO–Red Offset

Adjusts the red offset of an image.

Adjusting this setting also affects the black and white components of an image. This setting can only be applied to VGA or component signals.

Commands

Command	Description	Values
ROO <value>	Sets the red offset value.	0 to 100 50 (Default)

Examples

Set the red offset value to 50: `(ROO 50)`

SBL–Status LED

Turns the status LED on or off.

Commands

Command	Description	Values
SBL <value>	Turns the status LED on or off.	0 = Turns on the status LED (Default) 1 = Turns off the status LED 2 = Turns on the status LED only for warnings and errors

Examples

Enable the status LED so it is always on: `(SBL 0)`
Turn on the status LED only for warnings and errors: `(SBL 2)`

SCR–Skin Color

Adjusts the color tone of human skin in videos.

Commands

Command	Description	Values
SCR ?	Returns the color tone set.	—
SCR <value>	Adjusts the color tone of human skin.	0 = Disables adjusting skin color tone 1 = Applies low adjustment to skin color tone 2 = Applies middle adjustment to skin color tone

Command	Description	Values
		3 = Applies high adjustment to skin color tone

Examples

Disable adjusting the color tone of human skin in videos: `(SCR 0)`
Apply high adjustment to the color tone of human skin in videos: `(SCR 3)`

SEC–Serial Port Echo

Controls whether the serial port echoes characters.

Commands

Command	Description	Values
SEC <0 | 1>	Enables or disables the serial port character echo.	0 = Turns off the serial port character echo (Default) 1 = Turns on the serial port character echo

Examples

Disable the serial port character echo: `(SEC 0)`
Turn on the serial port character echo: `(SEC 1)`

SHU–Shutter

Opens and closes the shutter.

Commands

Command	Description	Values
SHU?	Gets the state of the shutter. (Read-only)	—
SHU <0 | 1>	Opens or closes the shutter.	0 = Opens the shutter 1 = Closes the shutter (Default)

Examples

Get the state of the shutter:
`(SHU?)`
Result:
`(SHU!0)`
Indicates the shutter is open.

Open the shutter: `(SHU 0)`
Close the shutter: `(SHU 1)`

SIF–Secondary Source Information

Displays the current settings for the picture-in-picture/picture-by-picture image input.

Returns secondary source information in read-only mode.

Commands

Command	Description	Values
SIF+ACTS?	Returns the active source. (Read-only)	—
SIF+APRT?	Returns the aspect ratio. (Read-only)	—
SIF+CLSP?	Returns the color space setting. (Read-only)	—
SIF+HREF?	Returns horizontal refresh information. (Read-only)	—
SIF+PIXC?	Returns the pixel clock settings. (Read-only)	—
SIF+RESL?	Returns the resolution. (Read-only)	—
SIF+SGFT?	Returns the signal format. (Read-only)	—
SIF+SYNC?	Returns the sync type. (Read-only)	—
SIF+VREF?	Returns vertical refresh information. (Read-only)	—

Examples

Return the image resolution: `(SIF+RESL?)`

SIN–Select Input

Selects the active input.

Commands

Command	Description	Values
SIN+MAIN <value>	Sets the active input for the main video.	1 = VGA 3 = HDMI 1 4 = HDMI 2 5 = DVI-D 7 = 3G-SDI 8 = HDBaseT
SIN+PIIP <value>	Sets the active input for the picture-in-picture video.	

Examples

Set the main video to HDMI 1: `(SIN+MAIN 3)`
Set the picture-in-picture video to DVI-D: `(SIN+PIIP 5)`

SIV–Serial Command Version

Displays the serial command version.

Commands

Command	Description	Values
SIV?	Displays the serial command version. (Read-only)	—

SKS–Source Key Function Settings

Sets the method for searching the input source.

Commands

Command	Description	Values
SKS <value>	Sets the method for searching the input source.	0 = Changes the source manually by pressing INPUT 1 = Lists all the sources and then select the appropriate input source 2 = Automatically searches the source (Default)

Examples

Change the source manually: `(SKS 0)`
Automatically search the source: `(SKS 2)`

SLP–Sleep Timer

Turns the projector off after a set period of time.

Timing starts when the projector is turned on, or when the sleep timer auto power off function is canceled. Automatic power off only occurs when an image is displayed.

Commands

Command	Description	Values
SLP <value>	Sets the duration of the sleep timer.	0 = Off (Default) 1 = 2 hours 2 = 4 hours 3 = 6 hours

Examples

Turn off the sleep timer: `(SLP 0)`
Set the sleep timer duration to 4 hours: `(SLP 2)`

SNS–Source Name Setting

Changes the source name to a user-defined name.

Subcode availability is determined by your hardware configuration.

Commands

Command	Description	Values
SNS+SRC <value>	Applies a name to the specified input.	1 = VGA 3 = HDMI 1 4 = HDMI 2 5 = DVI-D 7 = 3G-SDI

Command	Description	Values
		8 = HDBaseT

Examples

Change the source name to DVI-D: `(SNS+SRC 5)`

SOR–Rear Projection

Selects the orientation of the displayed image.

Commands

Command	Description	Values
SOR <0 | 1>	Enables or disables rear projection.	0 = Turns off rear projection (Default) 1 = Turns on rear projection

Examples

Turn off rear projection: `(SOR 0)`
Turn on rear projection: `(SOR 1)`

SOS–3D Sync Out

Transmits a 3D sync signal by the 3D sync output connector to the emitter or another downstream projector for 3D blending purposes.

Commands

Command	Description	Values
SOS <0 | 1>	Configures the 3D Sync OUT port.	0 = Configures the 3D Sync OUT port to be fed directly to a 3D emitter (Default) 1 = Configures the 3D Sync OUT port to be fed to another downstream projector

Examples

Configure the 3D Sync OUT port to fed directly to a 3D emitter: `(SOS 0)`

Configure the 3D Sync OUT port to fed to a downstream projector: `(SOS 1)`

SPD–Dynamic Black Speed

Adjusts the speed of the light source correction.

Commands

Command	Description	Values
SPD <value>	Adjusts the speed of the light source correction. A lower value makes the correction slower and less aggressive, while a higher value results in a faster correction.	1 to 15 1 (Default)

Examples

Slowly correct the light source: `(SPD 1)`
Correct the light source more aggressively: `(SPD 14)`

SPP–Serial Port Path

Sets the serial port path.

Commands

Command	Description	Values
SPP <0 | 1>	Sets the serial port path.	0 = RS232 (Default) 1 = HDBaseT

Examples

Set the serial port path to RS232: `(SPP 0)`
Set the serial port path to HDBaseT: `(SPP 1)`

SPS–Splash Screen

Specifies the splash screen to display when no signal is present.

Commands

Command	Description	Values
SPS+SLCT <value>	Sets the splash screen to display.	0 = Factory logo (Default) 1 = Blue screen 2 = Black screen 3 = White screen

Examples

Set the splash screen to blue: `(SPS+SLCT 1)`
Set the splash screen to the factory logo: `(SPS+SLCT 0)`

SST–Projector Status

Returns status information about the projector in read-only mode.

Commands

Command	Description	Values
SST?	Returns all status items. (Read-only)	—

STH–Dynamic Black Strength

Sets the strength of the dynamic contrast adjustment.

Commands

Command	Description	Values
STH <value>	Sets the strength of the dynamic contrast adjustment. The higher the value, the stronger the correction.	0 to 3 2 (Default)

Examples

Set the strength of the dynamic contrast adjustment to strong:

```
(STH 3)
```

SYT–Sync Threshold

Helps to sync a hardware device, such as a DVD player, when connecting to a projector.

Only use this command with progressive signals.

Commands

Command	Description	Values
SYT <value>	Sets the sync threshold.	0 to 100 50 (Default)

Examples

Set the sync threshold to 50:

```
(SYT 50)
```

SZP–Size Presets

Sets the image to one of several preset size/position presets.

For all 3D input timings, only the 3D Mode size preset is available.

Commands

Command	Description	Values
SZP <value>	Sets the preset size type.	0 = Auto—Displays an image with the detected size (Default) 1 = Native—Displays the image in its native resolution 2 = 4:3—Retains the 4:3 aspect ratio 3 = LetterBox—Displays the image with black borders on the top and bottom 4 = Full Size—Fills the screen with the image (regardless of the source) 5 = Full Width—Stretches the image to the full display width and keeps the aspect ratio 6 = Full Height—Stretches the image to the full display height and keeps the aspect ratio 7 = Custom—Displays the image with a custom size and position for each source 8 = 3D Mode—Enabled for 3D input timings

Examples

Set the size preset to LetterBox: `(SZP 3)`

TDE–3D Enable

Sets the decoding method for 3D timings with different kinds of packing formats.

Commands

Command	Description	Values
TDE <value>	Sets the decoding method for 3D timings with different kinds of packing formats.	0 = Auto (Default) 1 = Frame Packing 2 = Side by Side 3 = Top and Bottom 4 = Frame Sequential 5 = Off

Examples

Set the decoding method for 3D timings to Frame Packing: `(TDE 1)`

TDI–3D Invert

Enables or disables inverting the 3D sequence in the case of a left and right eye mismatch.

Commands

Command	Description	Values
TDI <0 | 1>	Enables or disables inverting the 3D sequence in the case of a left and right eye mismatch.	0 = Turns off inverting the 3D sequence (Default) 1 = Turns on inverting the 3D sequence

Examples

Turn off inverting the 3D sequence: `(TDI 0)`
Turn on inverting the 3D sequence: `(TDI 1)`

TNR–Temporal Noise Reduction

Removes the luminance component noise for low-light videos.

Commands

Command	Description	Values
TNR ?	Returns the level of noise adjustment applied for low-light videos.	—
TNR <value>	Adjusts luminance component noise for low-light videos.	0 = Disables removing noise 1 = Applies low adjustment for removing noise 2 = Applies middle adjustment for removing noise 3 = Applies high adjustment for removing noise

Examples

Disable removing noise from low-light videos: `(TNR 0)`
Apply high adjustment for removing noise from low-light videos: `(TNR 3)`

TNT–Tint

Adjusts the balance of red-to-green in your image.

Commands

Command	Description	Values
TNT <value>	Sets the red-to-green color balance in the image.	0 to 100 50 (Default)

Examples

Set the red-to-green color balance to 50: `(TNT 50)`

UID–Enter Service Mode

Puts the projector in service mode.

Commands

Command	Description	Values
UID "service,service"	Places the projector in service mode.	—

Examples

Place the projector in service mode:

```
(UID "service" "<password>")
```

VPC–Vertical Pincushion

Corrects the distortion created when the top and bottom sides of the image bend inwards to the center of the display.

If a DPWM is installed use the pincushion/barrel function for adjustments.

Commands

Command	Description	Values
VPC <value>	Sets the vertical distortion value.	0 to 100 50 (Default)

Examples

Set the vertical distortion value to 25:

```
(VPC 25)
```

VRT–Vertical Position

Sets the vertical position of the image.

When applying this function, some of the active area is blank. Increase the value to move the active image up.

Commands

Command	Description	Values
VRT?	Returns the vertical position value on the main video. (Read-only)	—
VRT <value>	Sets the vertical position for the main image.	0 to 100

Command	Description	Values
		50 (Default)

Examples

Set the vertical position to 50: `(VRT 50)`

VTT–12V Trigger

Enables or disables the 12V trigger.

The 12V trigger is used for electrical projector screens. The projector screen is automatically lowered or raised when the projector is switched on or off.

Commands

Command	Description	Values
VTT <0 | 1>	Enables or disables the 12V trigger.	0 = Disables the 12V trigger (Default) 1 = Enables the 12V trigger

Examples

Disable the 12V trigger: `(VTT 0)`
Enable the 12V trigger: `(VTT 1)`

WAP–Apply Warp Settings

Applies previously saved geometry setting to the projector.

Commands

Command	Description	Values
WAP?	Returns the geometry setting that is applied to the projector.	—
WAP <value>	Applies previously saved geometry setting to the projector.	0 (Default) 1 to 4 = Selects saved warp settings

Examples

Disable warping: `(WAP 0)`
Use saved warp setting #3: `(WAP 3)`

WAS–Save Warp Settings

Saves the geometry correction after doing warping and blending.

One projector can save up to five geometry settings.

Commands

Command	Description	Values
WAS <value>	Saves the geometry correction after doing warping and blending.	0 to 3 = Saves geometry correction to one of five warp settings 0 (Default)

Examples

Save the geometry correction to warp setting #3: `(WAS 3)`

WPK–White Peaking

Increases the brightness of whites to near 100%.

This setting can only be applied to video sources.

Commands

Command	Description	Values
WPK?	Returns the white peak setting that is set.	—
WPK <value>	Sets the white peak.	0 to 100 in increments of 10 steps 100 (Default)

Examples

Set the white peak to 50: `(WPK 50)`

WRE–Warping Reset

Resets the geometry correction.

Commands

Command	Description	Values
WRE 1	Resets the geometry correction.	1

Examples

Reset the geometry correction: `(WRE 1)`

WRP–Geometry Correction

Applies a geometry correction to an image.

Commands

Command	Description	Values
WRP+HKST <value>	Corrects image distortion created when the projected image is to the left or right of the lens axis. Increase the value to increase right keystoning.	0 to 40 20 (Default)
WRP+VKST <value>	Corrects the distortion created when the projected image is above or below the lens axis. Increase the value to increase positive keystoning.	0 to 40 20 (Default)

Examples

Set the horizontal keystone value to 10: `(WRP+HKST 10)`
Set the vertical keystone value to 30: `(WRP+VKST 30)`

ZOM–Zoom

Sets the lens zoom.

Commands

Command	Description	Values
ZOM <value>	Increases or decreases the zoom.	n = Increases zoom by one p = Decreases zoom by one