Technical Reference

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H Series
Serial API Commands

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i. Problems or damage caused by use of a projector in the presence of an oil-based fog machine or laser-based lighting that is unrelated to the projector.

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The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

CAN ICES-3 (A) / NMB-3 (A)

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Content

Communicating with H Series

Understand the information and procedures for communicating with H Series from a remote location.

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. Connect an Ethernet cable to the projector from your computer.
2. Setup the correct IP for the projector on your computer.
3. On the TCP software, use port 3002.
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 code and the number when entering commands.

For example, PXT50 can be entered as PXT 50. To increase or decrease a value in some commands, enter n for the next value and p for the previous value. For example:

```
(OVS0): OFF
(OVS1): ZOOM
(OVS2): CROP
```

If the current over scan (OVS) setting is off (OVS n), the command OVS p sets the value to zoom.

Understanding message format

Commands sent to and from H Series are formatted as simple text messages consisting of a three letter command code, an optional four letter subcode, and optional data.

You can include optional features such as message acknowledgments with your commands.

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.
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).

Message element	Description
	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 H Series 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	Description	Values
ADR <value>	Sets the projector address to <value>.	0 to 9 0 (Default)

Examples

Set the projector address to six:

```
(ADR 6)
```

AIM–Auto Image

Reacquires and locks an input signal.

Commands

Command	Description	Values
AIM <0 | 1>	Reacquires an input signal. (Write-only)	0 = Normal mode—Supports all 4:3 input sources. 1 = Wide mode—Supports all 16:9 input sources and most 4:3 input sources. If a 4;3 input source, such as 1400 x 1050 is not recognized, use Normal mode.

Examples

Reacquire a signal in normal mode: `(AIM 0)`
Reacquire a signal in wide mode: `(AIM 1)`

APW–Auto Power On

Turns the projector on with a wall switch and bypasses standby mode.

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)`

BCL–Brilliant Color

Produces an expanded on-screen color spectrum that delivers enhanced color saturation for bright, true-to-life images.

Applying this setting increases image brightness and reduces color accuracy.

Commands

Command	Description	Values
BCL <0 | 1>	Sets the image color spectrum.	0 = Sets the image color spectrum to normal 1 = Sets the image color spectrum to bright (Default)

Examples

Set the image color spectrum to normal: `(BCL 0)`
Set the image color spectrum to bright: `(BCL 1)`

BDR–Baud Rate

Sets the baud rate for a serial communications port.

Commands

Command	Description	Values
BDR+PRTA <value>	Sets the baud rate for the RS232-IN port.	0 = 2400 1 = 4800 2 = 9600 3 = 14400 4 = 19200 5 = 38400 6 = 57600 7 = 115200 (Default)
BDR+PRTB <value>	Sets the baud rate for the RS232-OUT port.	
BDR+PRTC <value>	Sets the baud rate for the RS422 port.	

Command	Description	Values
		8 = 1200

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) 4 = DICOM

Examples

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

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. This setting can only be applied to VGA or component signals.

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. This setting can only be applied to VGA or component signals.

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+MTRA <0 | 1>	Enables or disables meter adjustments.	0 = Turns off meter adjustments (Default) 1 = Turns on meter adjustments
CCA+MTTP <0 | 1>	Enables or disables the automatic test patterns for manual adjustment.	0 = Turns off automatic test patterns 1 = Turns on automatic test patterns (Default)
CCA+RDMI <value>	Specifies the red intensity.	100 to 10000 453 (Default)
CCA+RDMX <value>	Specifies the x coordinate for red.	0.300 t0 0.700 0.633 (Default)
CCA+RDMY <value>	Specifies the y coordinate for red.	0.300 to 0.500 0.356 (Default)
CCA+GNMI <value>	Specifies the green intensity.	100 to 10000 2137 (Default)
CCA+GNMX <value>	Specifies the x coordinate for green.	0.300 to 0.400 0.352 (Default)
CCA+GNMY <value>	Specifies the y coordinate for green.	0.400 to 0.700 0.572 (Default)
CCA+BLMI <value>	Specifies the blue intensity.	100 to 10000 239 (Default)
CCA+BLMX <value>	Specifies the x coordinate for blue.	0.100 to 0.300 0.140 (Default)
CCA+BLMY <value>	Specifies the y coordinate for blue.	0.030 to 0.400 0.093 (Default)
CCA+WHMI <value>	Specifies the white intensity.	100 to 10000 9219 (Default)
CCA+WHMX <value>	Specifies the x coordinate for white.	0.200 to 0.400

Command	Description	Values
		0.331 (Default)
CCA+WHMY <value>	Specifies the y coordinate for white.	0.200 to 0.400 0.380 (Default)
CCA+RDDG <value>	Specifies the red gain.	0.200 to 1.000 1.000 (Default)
CCA+RDDX <value>	Specifies the x coordinate for red gain.	0.300 to 0.700 0.643 (Default)
CCA+RDDY <value>	Specifies the y coordinate for red gain.	0.300 to 0.500 0.344 (Default)
CCA+GNDG <value>	Specifies the green gain.	0.200 to 1.000 1.000 (Default)
CCA+GNDX <value>	Specifies the x coordinate for green gain.	0.300 to 0.400 0.544 (Default)
CCA+GNDY <value>	Specifies the y coordinate for green gain.	0.400 to 0.700 0.544 (Default)
CCA+BLDG <value>	Specifies the blue gain.	0.200 to 1.000 1.000 (Default)
CCA+BLDX <value>	Specifies the x coordinate for blue gain.	0.100 to 0.300 0.141 (Default)
CCA+BLDY <value>	Specifies the y coordinate for blue gain.	0.030 to 0.400 0.094 (Default)
CCA+WHDG <value>	Specifies the white gain.	0.200 to 1.000 1.000 (Default)
CCA+WHDX <value>	Specifies the x coordinate for white gain.	0.200 to 0.400 0.334 (Default)
CCA+WHDY <value>	Specifies the y coordinate for white gain.	0.200 to 0.400 0.371 (Default)
CCA+MANA <0 | 1>	Enables or disables manual adjustment.	0 = Turns off manual adjustment (Default) 1 = Turns on manual adjustment
CCA+MNTP <0 | 1>	Turns automatic test patterns for manual adjustment items on or off.	0 = Turns off automatic test patterns 1= Turns on automatic test patterns (Default)
CCA+ROFR <value>	Manually adjusts the red portion of red.	0 to 1000 1000 (Default)
CCA+GOFR <value>	Manually adjusts the green portion of red.	0 to 1000 0 (Default)
CCA+BOFR <value>	Manually adjusts the blue portion of red.	
CCA+GOFG <value>	Manually adjusts the green portion of green.	0 to 1000

Command	Description	Values
		1000 (Default)
CCA+ROFG <value>	Manually adjusts the red portion of green.	0 to 1000 0 (Default)
CCA+BOFG <value>	Manually adjusts the blue portion of green.	
CCA+BOFB <value>	Manually adjusts the blue portion of blue.	0 to 1000 1000 (Default)
CCA+ROFB <value>	Manually adjusts the red portion of blue.	0 to 1000 0 (Default)
CCA+GOFB <value>	Manually adjusts the green portion of blue.	
CCA+ROFW <value>	Manually adjusts the red portion of white.	0 to 1000 1000 (Default)
CCA+GOFW <value>	Manually adjusts the green portion of white.	
CCA+BOFW <value>	Manually adjusts the blue portion of white.	

Examples

Turn on meter adjustment: `(CCA+MTRA 1)`
Turn on automatic test patterns for manual adjustments: `(CCA+MNTP 1)`
Set the measured intensity of red to 453: `(CCA+RDMI 453)`

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 3 = Bright color

Examples

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

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)`

CLC–Closed Captions

Controls when closed captions are displayed.

When active, the NTSC source containing captions is active on a selected channel and the captions are overlaid on the image.

Commands

Command	Description	Values
CLC <value>	Controls when closed captions are displayed.	0 = Turns closed captions off (Default) 1 = Activates closed captions on channel one 2 = Activates closed captions on channel two

Examples

Turn closed captions off: `(CLC 0)`
Activate closed captions on channel one: `(CLC 1)`
Activate closed captions on channel two:

```
(CLC 2)
```

CLR–Color

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

Commands

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

Examples

Set the color saturation value to 50:

```
(CLR 50)
```

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

Examples

Set the contrast value to 50:

```
(CON 50)
```

CSP–Color Space

Specifies which color space the input signal uses.

Commands

Command	Description	Values
CSP <value>	Selects the color space for the input signal.	0 = Auto For RGB: 1 = RGB (Default) 2 = RGB Video 3 = RGB REC709 For YUV: 4 = REC709 (Default) 5 = REC601

Examples

Select the RGB color space for the input signal:

```
(CSP 1)
```

CWI–Color Wheel Index Setting

Sets the color wheel index speed.

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

Commands

Command	Description	Values
CWI+SPX2 <color wheel number>	Sets the color wheel index speed to 2x.	—
CWI+SPX3 <color wheel number>	Sets the color wheel index speed to 3x.	—

Examples

Set the speed of color wheel index 26 to 2x:

```
(CWI+SPX2 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

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 RS232 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.	—

Examples

Reset H Series to factory defaults: `(DEF 111)`

Reset H Series to factory defaults:
`(DEF 111)`
Results:
`(65535 00000 FYI00919 "All settings have been restored to their factory defaults.")`
`(65535 00000 FYI00915 "Configured network: IP:192.168.232.61 Mask:255.255.254.0 Gateway:192.168.232.1")`

DIM–Dynamic Black

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

Commands

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

Examples

Turn on dynamic black:

```
(DIM 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. (Write-only)	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 3 = Low 4 = Minimum

Examples

Set the edge clarity of the image to low:

```
(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)
```

EDG–Edge Enhancement

Applies edge enhancement to an image.

Commands

Command	Description	Values
EDG <value>	Sets the edge enhancement for an image.	0 = Off (Default) 1 = Normal 2 = Maximum

Examples

Set the edge enhancement to the maximum value:

```
(EDG 2)
```

ERR–Error Log

Displays or clears the error log.

Commands

Command	Description	Values
ERR?	Shows the error log. (Write-only)	—
ERR+CLEAR1	Clears the error log. (Write-only)	—

FCS–Focus

Adjusts the focus of the image.

Commands

Command	Description	Values
FCS <position>	Adjusts the lens focus to the specified position.	position = A numerical value subject to the range returned in FCS?m

Examples

Move lens focus to position 500:

```
(FCS 500)
```

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

FMD–Detect Film

Enables or disables film motion detection.

When active, video motion is analyzed to determine if the video input is film (interlaced) or video (progressive). The analysis allows interlaced content to display correctly.

Commands

Command	Description	Values
FMD <0 | 1>	Enables or disables film detect.	0 = Turns off film detect (Default) 1 = Turns on film detect

Examples

Enable detect file mode:

```
(FMD 1)
```

FTC–Flesh Tone Correction

Modifies the flesh tone setting in an image.

Commands

Command	Description	Values
FTC <value>	Modifies the flesh tone setting in an image.	0 to 100 0 (Default)

Examples

Set the flesh tone setting to 50:

```
(FTC 50)
```

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)

Command	Description	Values
		1 = Freezes the current video

Examples

Freeze the image: `(FRZ 1)`

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. This setting can only be applied to VGA or component signals.

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. This setting can only be applied to VGA or component signals.

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.	—

Examples

Reset the offset values to their default values:

```
(GOR 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 (Default) 1 = Turns on high altitude functionality

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 = Blanks the screen 1 = Adjusts the aspect ratio 2 = Freezes the screen 3 = Displays projector information

Command	Description	Values
		4 = Activates overscan 5 = Turns closed captions on or off

Examples

Set the infrared remote hot key to freeze the screen:

```
(HKA 2)
```

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 <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.	-50 to 50 0 (Default)

Examples

Adjust the horizontal distortion to the default:

```
(HPC 0)
```

HSG–Color Enhancement

Applies preset color enhancements.

Commands

Command	Description	Values
HSG <value>	Applies a present color enhancement.	0 = Turns off color enhancement 1 = Applies color enhancement mode 1 (more natural) to the input signal (Default) 2 = Applies color enhancement mode 2 (more vivid) to the input signal

Examples

Turn off color enhancement: `(HSG 0)`
Apply color enhancement mode 1: `(HSG 1)`
Apply color enhancement mode 2: `(HSG 2)`

ITP–Test Pattern

Displays a test pattern.

Some test patterns require Service permissions. The switch from a grid or color bar test pattern can take 18 seconds.

Commands

Command	Description	Values
ITP <pattern>	Displays a test pattern on the display.	0 = Off 1 = Grid 2 = White 3 = Black 4 = Checker board 5 = Color bar 6 = Red 7 = Green 8 = Blue 9 = Yellow 10 = Magenta

Command	Description	Values
		11 = Cyan 12 = Boresight

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)	—

Examples

Send menu key 17 to the projector and displays the menu on the on-screen display:

```
(KEY 17)
```

Infrared remote key codes

Remote button	Key code (decimal)	Remote button	Key code (decimal)
ON (Power)	57	ENTER	40
Standby (Power Off)	58	INPUT	48
INFO	66	OSD	49
AUTO	47	CONTRAST	24
1	26	BRIGHT	25
2	27	FOCUS_LEFT	5
3	28	FOCUS_RIGHT	6
4	29	PROJ	22
5	30	GAMMA 23	23
6	31	ZOOM-	9
7	32	ZOOM+	10
8	33	KEYSTONE H-LEFT	69
9	34	KEYSTONE H-RIGHT	70
HELP	35	LENS H-LEFT	13
0	36	LENS H-RIGHT	14
HOT KEY	65	KEYSTONE V-UP	71
MENU	19	KEYSTONE V-DOWN	72
TEST	1	LENS V-UP	18
SHUTTER	2	LENS V-DOWN	17
EXIT	20	PIP/POP	15
UP	38	SIZE	67
RIGHT	41	LAYOUT	68
DOWN	42	SWAP	43
LEFT	39		

LCB–Lens Motor Calibration

Calibrates all of the lens motors.

Commands

Command	Description	Values
LCB+HOME 1	Moves the lens to the center and horizontal and vertical position. Zoom and focus are not affected.	—
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)	—

LHO–Lens Shift Horizontal

Adjusts the horizontal lens offset.

Commands

Command	Description	Values
LHO <position>	Adjusts the horizontal location of the lens to the specified position.	position = Numerical value

Examples

Move the lens to position 500 on the horizontal axis: `(LHO 500)`

LIF–Lamp Information

Displays lamp hour information.

Commands

Command	Description	Values
LIF+LP1H?	Returns the number of hours the lamp 1 was operating.	—
LIF+LP2H	Returns the number of hours the lamp 2 was operating.	—
LIF+LPTH?	Returns the number of hours for all lamps.	—
LIF+LP1R	Resets lamp 1.	—
LIF+LP2R	Resets lamp 2.	—

LLC–Light Sensor Calibration

Calibrates the light sensor. Complete a calibration whenever the light source is replaced.

Commands

Command	Description	Values
LLC 1	Calibrates the light sensor. (Write-only)	—
LLC+STAT?	Returns the current light sensor calibration setting.	1 = Calibrated

Examples

Initiate the calibration cycle: `(LLC 1)`

LMA–Lens Memory Apply Position

Applies the zoom, focus, and lens position according to the chosen lens memory position.

Commands

Command	Description	Values
LMA	Applies the zoom, focus, and lens position according to the chosen lens memory position.	—

LMS–Lens Memory Save Current Position

Saves the current zoom, focus, and lens position to the projector memory.

Commands

Command	Description	Values
LMS	Saves the current zoom, focus, and lens position to the projector memory.	—

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 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)
```

LOP–Lamp

Selects the operational mode of the lamps.

Commands

Command	Description	Values
LOP <value>	Sets the lamp operation for single, dual, or automatic selection (single lamp only).	1 = Lamp 1 single lamp use 2 = Lamp 2 single lamp use 3 = Dual lamp use

Examples

Use lamp 1:

```
(LOP 1)
```

LPC–Reset Lamp Hours

Resets the lamp hours.

Commands

Command	Description	Values
LPC+LMP1 1	Resets the lamp 1 hours. (Write-only)	—
LPC+LMP2 1	Resets the lamp 2 hours. (Write-only)	—
LPC+BOTH 1	Resets both lamp 1 and 2 hours. (Write-only)	—

Examples

Reset the lamp 1 hours:

```
(LPC+LMP1 1)
```

LPI–Constant Intensity

Adjusts the light source intensity.

Note the following about the LPI command:

- Changing a lamp or color wheel requires a light sensor calibration to record and measure the 11 levels of light sensor frequency. The LPI command is not available if a light sensor calibration has not been completed.

- The LPI and LPP commands cannot be enabled at the same time. If one is enabled, the other command is automatically disabled.
- If LPI is enabled, the DIM command is automatically disabled.

Commands

Command	Description	Values
LPI <value>	Sets the light source intensity.	0 to 10 7 (Default)

Examples

Set the light source intensity to five: `(LPI 5)`

LPL–Lamp Life

Sets the expected lamp life in hours. If the lamp run time exceeds this value, a warning is displayed in the status system.

The lamp run time is equal to the lamp's original lamp hours plus the amount of time it has been on while installed in the projector.

The lamp life limit can be set by the user, but it does not guarantee any number of hours for lamp life. This command has no bearing on lamp warranty and is not tied to actual lamp life in any way.

Commands

Command	Description	Values
LPL <hours>	Sets the number of hours before a warning is displayed in the status system about the lamp needing to be replaced.	Any positive number 2000 (Default)

Examples

Disable the lamp life monitoring: `(LPL 0)`
Display a warning message when the lamp has operated for 1500 hours: `(LPL 1500)`

LPM–Lamp Mode

Sets the lamp power and intensity modes.

Commands

Command	Description	Values
LPM <value>	Sets the lamp power control method.	0 = Constant Power—Specifies the power level supplied (Default) 1 = Constant Intensity—Maintains a specific brightness level over time 2 = Eco Mode—Maintains specific brightness for as long as possible

LPP–Constant Power

Sets the constant power mode.

Commands

Command	Description	Values
LPP <power>	Sets the power going to the light source, in watts.	0 to 10 10 (Default)

Examples

Set the light source to 360W:

```
(LPP 360)
```

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

LSF–Auto Lamp Switch

Enables or disables automatically switching the current lamp to an alternate lamp when a failure occurs.

Commands

Command	Description	Values
LSF <value>	Enables a lamp to automatically switch to an alternate lamp.	0 = Automatically switches the lamp on a failure only (Default) 1 = Automatically switches the lamp when the projector is powered on 2 = Automatically switches the lamp after X number of hours

LVO–Lens Shift Vertical

Adjusts the vertical lens offset.

Commands

Command	Description	Values
LVO <position>	Adjusts the vertical location of the lens to the specified position.	position = A numerical value

Examples

Move the lens to position 500 on the vertical axis:

```
(LVO 500)
```

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 = Disables displaying message boxes directly triggered by user actions 1 = Enables displaying message boxes directly triggered by user actions (Default)

Examples

Set user message boxes to not be displayed:
`(MBE+USER 0)`
Result:
`OFF`

Set user message boxes to be displayed:
`(MBE+USER 1)`
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.	—
MDT+HPOS <value>	Applies a horizontal offset. (Write-only)	<value> = Three numeric characters
MDT+VPOS <value>	Applies a horizontal offset. (Write-only)	<value> = Three numeric characters
MDT+SAVE <value>	Saves the settings. (Write-only)	<value> = One numeric character
MDT+CLER <value>	Clears the setting. (Write-only)	<value> = One numeric character

Examples

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

MIF–Main (Single) Source Information

Displays the current settings for the main image input.

Returns source information in read-only mode.

Commands

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

Examples

Return the image resolution:

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

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 <value>	Views or sets the vertical position of the menus. (Read-only)	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)`

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 off DHCP 1 = Turns on DHCP
NET+ETH0 <value>	Modifies Ethernet settings.	—
NET+SUB0 <value>	Modifies subnet mask settings.	—
NET+GATE <value>	Modifies gateway settings.	—
NET+HOST <value>	Modifies the projector name.	—
NET+MAC0 <value>	Modifies the MAC address settings.	—
NET+SHOW <0 | 1>	Turns network messages on or off.	0 = Turns off network messages 1 = Turns on network messages
NET+RSTR 1	Restarts the projector.	—
NET+RSET 1	Returns the projector name, LAN IP address, WLAN IP address, and SNMP settings to their factory defaults.	—

Examples

Turn DHCP off: `(NET+DHCP 0)`
Set the MAC address to 00:E0:47:01:02:3C: `(NET+MAC 0” 00:E0:47:01:02:3C”)`
Turn network messages on: `(NET+SHOW 1)`
Set the Ethernet address to 192.168.000.001: `(NET+ETH 0 ”192.168.000.001”)`
Restart the projector: `(NET+RSTR 1)`
Set the subnet mask to 255.255.255.000: `(NET+SUB 0 ”255.255.255.000”)`

NRD–Noise Reduction

Reduces the temporal and spatial noise in an image.

Commands

Command	Description	Values
NRD <value>	Sets the noise reduction.	0 to 100 0 (Default)

Examples

Set the noise reduction to 50: `(NRD 50)`

NTW–Wireless Network

Modifies the wireless network settings.

Commands

Command	Description	Values
NTW+SLCT <0 | 1>	Turns wireless network on or off.	0 = Turns the wireless network off 1 = Turns the wireless network on

Command	Description	Values
NTW+ETH0 <value>	Modifies the start IP address for the wireless network.	—
NTW+ENIP <value>	Modifies the end IP address for the wireless network.	—
NTW+SUB0 <value>	Modifies subnet mask settings.	—
NTW+GATE <value>	Modifies gateway settings.	—
NTW+MAC0 <value>	Modifies the MAC address settings.	—
NTW+SSID <value>	Modifies the unique wireless network name.	—

Examples

Turn the wireless LAN on: `(NTW+SLCT 1)`
Set the MAC address to 00:E0:47:01:02:3C: `(NET+MAC0”00:E0:47:01:02:3C”)`
Set the IP address to 192.168.000.001: `(NET+ETH0”192.168.000.001”)`
Set the 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 <0 | 1>	Enables or disables the on-screen display.	0 = Hides the on-screen display 1 = Displays the on-screen display

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)`

OVS–Over Scan

Modifies how the input images edges are framed and removes noise from around the image.

Commands

Command	Description	Values
OVS <value>	Modifies how the input images edges are framed and removes noise from around the image.	0 = Off 1 = Zoom—Enlarges the image 6% from the original size 2 = Crop—Cuts 6% of the active pixels from the four edges of the original image

Examples

Crop the input image edges: `(OVS 2)`

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)`

PCM–PC Mode

Provides two ways to control warping and blending of images.

Commands

Command	Description	Values
PCM <0 | 1>	Provides two ways to control warping and blending of images.	0 = Allows the user to do simple horizontal and vertical keystone, pincushion, and barrel control by using the on-screen display (Default) 1 = Allows the user to warp or blend images using the separate PC application.

Examples

Allow the user to do simple warping control: `(PCM 0)`
Allow the user to warp or blend images using the separate PC application: `(PCM 1)`

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 <value>	Sets the picture-in-picture/picture-by-picture size.	0 = Small 1 = Medium 2 = Large

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+MDLN?	Returns the model name.	—
PIF+SNUM?	Returns the serial number.	—
PIF+NERS?	Returns the native resolution.	—
PIF+FWVS?	Returns the firmware version.	—
PIF+CFVS?	Returns configuration information.	—
PIF+BCVS?	Returns the boot code.	—

PIP–Picture in Picture

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

Commands

Command	Description	Values
PIP <value>	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

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 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.	—

PST–Picture Setting

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

This command optimizes the projector display for certain conditions, such as presentation, video, DICOM SIM, and so on. Applying this setting affects the following commands:

- Gamma
- Sharpness
- White peaking
- Overscan
- Brightness
- Contrast
- Color
- Tint
- Gain—red, green, blue
- Offset—red, green, blue

Commands

Command	Description	Values
PST <value>	Optimizes the projector. The 3D value is the only available option for 3D inputs.	0 = Presentation 1 = Video 2 = Bright 3 = Real 4 = DICOM SIM

Command	Description	Values
		5 = 2D High Speed 6 = 3D (Read-only) 7 = User

Examples

Optimize the projector for bright viewing content: `(PST 2)`

PWR–Power

Changes the power state of the product.

Commands

Command	Description	Values
PWR?	Returns the current power state of the projector.	—
PWR+STBM <0 | 1>	Places the projector in standby mode when connected to AC power.	0 = 0.5 W mode 1 = Communication 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

Command	Description	Values
		50 (Default)

Examples

Set the pixel phase to 50:

```
(PXP 50)
```

PXT–Pixel Tracking

Adjusts the position of the pixel sampling clock to match the input signal.

Proper pixel tracking ensure the image quality is consistent across the screen. If adjusted incorrectly, flickering or vertical bars of noise appear across the image. Adjust Pixel Tracking so the noise either disappears or fills the image. If it fills the image, use Pixel Phase to eliminate the noise.

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

Commands

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

Examples

Set the pixel tracking to 50:

```
(PXT 50)
```

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. This setting can only be applied to VGA or component signals.

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)
```

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

SHU–Shutter

Opens and closes the shutter.

Commands

Command	Description	Values
SHU?	Gets the state of the shutter.	—
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.	—
SIF+SGFT?	Returns the signal format.	—
SIF+APRT?	Returns the aspect ratio.	—
SIF+RESL?	Returns the resolution.	—
SIF+VREF?	Returns vertical refresh information.	—
SIF+HREF?	Returns horizontal refresh information.	—
SIF+PIXC?	Returns the pixel clock settings.	—
SIF+SYNC?	Returns the sync type.	—
SIF+CLSP?	Returns the color space setting.	—

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 2 = BNC 3 = HDMI 1 4 = HDMI 2 5 = DVI-D 6 = DisplayPort 7 = 3G-SDI 8 = HDBaseT 9 = CVBS 10 = Presenter 11 = Card Reader 12 = Mini USB
SIN+PIP <value>	Sets the active input for the picture-in-picture video.	

Examples

Set the main video to DVI-D: `(SIN+MAIN 5)`
Set the picture-in-picture video to HDBaseT: `(SIN+PIP 8)`

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

Assigns functionality to the source hot key.

Commands

Command	Description	Values
SKS <value>	Assigns the hot key functionality.	0 = Changes the hot key source 1 = Returns a list of all sources 2 = Allows source changes with the Auto Source button

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 cancelled. 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

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> "name"	Applies a name to the specified input.	1 = VGA 2 = BNC 3 = HDMI 1 4 = HDMI 2 5 = DVI-D 6 = DisplayPort 7 = 3G-SDI 8 = HDBaseT 9 = CVBS 10 = Presenter A = Card Reader B = Mini USB

SOR–Rear Projection

Selects the orientation of the displayed image.

Reverse the image so it can be projected from behind a translucent screen.

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)`

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

SST–Projector Status

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

Commands

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

Examples

Return the projector status:

(SST?)

Result:

```
(SST!000 "DWU550-G" "Model Name")
(SST!001 "G11224014" "Serial Number")
(SST!002 "1920x1200" "Native Resolution")
(SST!003 "HDMI 1" "Main Input")
(SST!004 "Digital" "Main Signal Format")
(SST!005 "148.5MHz" "Main Pixel")
(SST!006 "Separate" "Main Sync Type")
(SST!007 "67.7kHz" "Main Horz Refresh")
(SST!008 "60.0Hz" "Main Vert Refresh")
(SST!009 "HDMI 2" "PIP / PBP Input")
(SST!010 "Digital" "PIP / PBP Signal Format")
(SST!011 "135.2MHz" "PIP / PBP Pixel Clock")
(SST!012 "Separate" "PIP / PBP Sync Type")
(SST!013 "62.7kHz" "PIP / PBP Horz Refresh")
(SST!014 "60.0Hz" "PIP / PBP Vert Refresh")
(SST!019 "0.5W Mode" "Standby Mode")
(SST!020 "Allow" "Lens Lock Setting")
(SST!021 "192.168.1.10" "IP Address")
(SST!022 "On" "DHCP")
(SST!023 "24C" "System Temperature")
(SST!024 "V30, A27, B21")
(SST!025 "--END--" "")
```

SYS–DA Offset Setting

Manually adjusts the dynamic aperture offset to get the correct aperture.

The user can change the value and observe the projecting image while tuning the dynamic aperture offset. Find the value corresponding to the maximum brightness.

Commands

Command	Description	Values
SYS+DAHP <value>	Manually adjusts the dynamic aperture offset to get the correct aperture.	10 to 16

Examples

Set the dynamic aperture offset to 12:

```
(SYS+DAHP 12)
```

Set the dynamic aperture offset to 16: `(SYS+DAHP 16)`

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

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

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

TDT–Toggle 3D Blending

Toggles 3D blending.

This command is only available in PC mode.

Commands

Command	Description	Values
TDT <0 | 1>	Enables or disables 3D blending.	0 = Disables 3D blending 1 = Enables 3D blending

TMG–Timing Detect Mode

Sets the timing detection mode to wide or normal.

When the projected image is not completed, use this function to adjust the picture. For 4:3 input sources not recognized by Wide mode (for example 1400 x 1050), perform Auto Image using Normal mode.

Commands

Command	Description	Values
TMG <value>	Sets the timing detection mode.	0 = Normal 1 = Wide (Default)

Examples

Set the timing detection mode to wide: `(TMG 1)`

TNT–Tint

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

This command only applies to analog video NTSC sources.

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. (Write-only)	—

VBL–Video Black Level

Optimizes the black level for analog video signals.

When this option is on, the projector analyzes the current image, calculates an offset value, and adds it to the analog digital converter black level value.

Commands

Command	Description	Values
VBL <0 | 1>	Enables or disables video black level optimization.	0 = Turns off video black level optimization 1 = Turns on video black level optimization

Examples

Turn off video black level optimization: `(VBL 0)`
Turn on video black level optimization: `(VBL 1)`

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.	-50 to 50 0 (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 <value>	Sets the vertical position for the main image.	0 to 100 50 (Default)

Examples

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

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 <value>	Sets the white peak.	0 to 100

Examples

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

WRE–Warping Reset

Resets the geometry correction.

Commands

Command	Description	Values
WRP+WRE	Resets the geometry correction.	0 = Does not reset the geometry correction 1 = Resets the geometry correction

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.	-20 to 20 0 (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.	-20 to 20 0 (Default)

Examples

Set the horizontal keystone value to 10: `(WRP+HKST 10)`
Set the vertical keystone value to -20: `(WRP+VKST -20)`

ZOM–Zoom

Sets the lens zoom.

Commands

Command	Description	Values
ZOM <position>	Adjusts the lens zoom to the specified position.	p = Increases the zoom by one (same as pressing the Up arrow on the ZOOM remote control) n = Decreases the zoom by one (same as pressing the Down arrow on the ZOOM remote control)

Examples

Move the lens to position 500 for the zoom motor: `(ZOM 500)`

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