Technical Reference
020-102096-10

Boxer 30
Serial API Commands

CHRISTIE®

NOTICES

COPYRIGHT AND TRADEMARKS

GENERAL

Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes to specifications at any time without notice. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Christie makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of fitness for a particular purpose. Christie will not be liable for errors contained herein or for incidental or consequential damages in connection with the performance or use of this material. Manufacturing facilities in Canada and China are ISO 9001 certified. Manufacturing facilities in Canada are also ISO 14001 certified.

Warranty

Products are warranted under Christie's standard limited warranty, the details of which are available at *https://www.christiedigital.com/help-center/warranties/* or by contacting your Christie dealer or Christie.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

REGULATORY

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. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

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

이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

ENVIRONMENTAL

The product is designed and manufactured with high-quality materials and components that can be recycled and reused. This symbol 🗑 means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

Content

Communicating with Boxer 30

Understand the information and procedures for communicating with Boxer 30 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.

Product documentation

For installation, setup, and user information, see the product documentation available on the Christie Digital Systems USA Inc. website. Read all instructions before using or servicing this product.

Boxer 4K, Boxer 2K, Boxer 30

1. Access the documentation from the Christie website:

   - Go to *http://bit.ly/2mpf6QK* or
     https://www.christiedigital.com/en-us/business/products/projectors/3-chip-dlp/boxer-series

   - Scan the QR code using a QR code reader app on a smartphone or tablet.

2. On the product page, select the model and switch to the **Downloads** tab.

Related documentation

Additional information on the projector is available in the following documents.

- *Boxer 30 Installation and Setup Guide (P/N: 020-102017-XX)*
- *Boxer 30 User Guide (P/N: 020-102016-XX)*
- *Boxer Product Safety Guide (P/N: 020-101780-XX)*
- *Boxer 4K Service Guide (P/N: 020-101699-XX)*
- *Boxer 30 Status System Guide (P/N: 020-102233-XX)*

Connection and use

Once you have connected your computer to either the RS232 IN port (depending on which standard is supported by your computer) or to the Ethernet port on Boxer 30, you can remotely access controls and image setups, issue commands or queries, and receive replies.

Use these bidirectional messages to:

- Control multiple projectors
- Obtain a projector's status report
- Diagnose performance problems

Refer to the User Manual provided with the projector for all cable requirements and other connection details.

Some commands are operational only when projector is powered up.

Connecting to a computer or server

Communicate with a remote computer, server, or an existing network using a RJ-45 cable.

The RS232 port located on the IMXB faceplate uses Christie-proprietary protocol and is intended for Christie accessories or automation controllers only.

1. Use an RJ-45 cable to connect the Ethernet hub or switch to the Ethernet port, located on the projector IMXB faceplate.
2. When using the Christie serial protocol over Ethernet, connect to port 3002.
3. For applications or equipment using serial communications, use the Christie-proprietary serial protocol to communicate with the RS232 port on the IMXB faceplate.

Configuring the RS232 port

Configure the RS232 port to send Christie serial commands using a standard RS232 serial cable.

1. Select **Menu** > **Communications** > **Projector Communication**.
2. Use the down arrow to select **Baud Rate**.
3. Select the appropriate baud rate and select **Enter**.
4. Use the down arrow to select **Network Routing**.
5. Select the type network routing appropriate for your projector and select **Enter**.

Setting up the Ethernet

Ethernet is setup to obtain an IP address automatically if a DHCP server is on the network, modify IP settings, or manually enter an address.

Christie recommends using the Ethernet port on the IMXB as the HDBaseT port is limited to 100 Mb/s.

You cannot change the IP settings using the web interface.

1. From the display panel, use the arrow keys to select **IP Settings**.

2. To set the type of network, select **DHCP** or **Static**.
3. If you selected Static, manually enter the network information for the **IP Address**, **Subnet**, and **Gateway**.
4. Select **Apply** and select **Enter**.
5. Select **MENU** > **Communications** > **Network Settings**.
6. Select **Device name**.
7. Use the up and down keys to enter the name of the projector.
8. Select **Enter**.

Understanding message format

Commands sent to and from Boxer 30 are formatted as simple text messages consisting of a three letter command 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 input port configuration)	`(SIN+PORT 1)`
	(Code ?)	REQUEST (what is current power state?)	`(PWR?) or (PWR ?)`
	(Code+Subcode ?)	REQUEST (what is current input port configuration?)	`(SIN+PORT?)`
From projector	(Code Data)	REPLY (power state is 1 "On")	`(PWR!001 "On")`
	(Code+Subcode Data)	REPLY (input port configuration is 1 "One-Port")	`(SIN+PORT!001 "One-Port")`

Generally, most commands include 0 or 1 data fields or parameters. Where applicable, a message may expand to include additional parameters of related details.

The smallest step size for any parameter is always 1. For some controls (such as Size) the value displayed on the screen has a decimal point (for example, 0.200 to 4.000). In this case, the values used for the serial communications is an integer value (for example, 200 to 4000), not the decimal value seen on the screen.

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.

Basic message structure

Understand the component fields that comprise a standard ASCII message.

Components	Description
Start and end of message	Every message begins with the left bracket character and ends with the right bracket character. If the start character is received before an end character of the previous message, the partial (previous) message is discarded.
Prefix characters (optional)	To acknowledge that Boxer 30 has responded, and/or maximize message integrity, insert one or two special characters before the three-character function code: • $ (Simple Acknowledgment)—Causes a dollar sign ($) character to be sent from Boxer 30 when it has finished processing the message. • # (Full Acknowledgment)—Causes an echo of the message as a reply to be sent from Boxer 30 when it has finished processing the message. • & (Checksum)—Allows a checksum to be put as the last parameter in the message for verification at Boxer 30.
Projector numbers (optional)	To control a selected Boxer 30 or controller within a group, include its assigned number or address just before the three-character ASCII function code.
Function code	The Boxer 30 function you want to work with, such as channel selection or gamma, is represented by a three-character ASCII code (A-Z, upper or lower case). This function code appears immediately after the leading bracket that starts the message. In messages sent to Boxer 30 that do not have a subcode, a space between the function code and the first parameter (or special character) is optional.
+Subcode	The Boxer 30 function you want to work with may have one or more subcodes that allow you to select a specific source, image, channel or subfunction. The subcode is represented by a four-character ASCII code (A-Z, upper or lower case, and 0-9). This subcode appears immediately after the function code, with a plus sign (+) character to separate the code and subcode. If there is no subcode, the plus sign (+) is also omitted. In messages sent to Boxer 30 that have a subcode, a space between the subcode and the first parameter (or special character) is optional.
Request/reply symbols	If the controller is requesting information from Boxer 30, a question mark (?) appears directly after the function code. If Boxer 30 is replying, an exclamation mark (!) appears directly after the function code. For set messages to Boxer 30, neither of these characters appear—data directly follows the code and subcode. A request for information is represented by a question mark (?) that appears directly after the function code. A reply is represented by an exclamation mark (!) that appears directly after the function code or subcode, if one is provided. The first parameter located after the exclamation mark (!) reply character cannot have a space, for example (PWR!000).
Data	The value for a given Boxer 30 state, such as on or off, appears in ASCII-decimal format directly after the request/reply symbol. You can add an optional space after the symbol—such as before the data—in a set message, but data in replies follow the exclamation mark (!) symbol without a space. Other details to remember about data:

Components	Description
	• All values returned by Boxer 30 (reply messages) have a fixed length, regardless of the actual value. For a specific parameter, the length is always the same (for example, contrast is always returned as three characters, Boxer 30 number is always returned as five characters). The minimum parameter size is three characters. Values less than the predefined size are padded with leading zeros as needed. Parameters which have negative signs are zero padded after the negative sign, and have one less digit to make space for the sign. • If entering a negative number, there must be a space between the code/subcode and the value; for example, (CRM3) and (CRM 3) can both be used when the number is positive. (CRM -2) is acceptable, but (CRM-2) is not. • Data in set messages to Boxer 30 do not require padding with zeros. • Within each message, multiple parameters of data must be separated by one space character. • Text parameters such as channel names are enclosed in double quotes following the data, as in Name.
Text parameters	Most data is simply a numerical value; however, some messages also require text. For example, a channel naming message typically includes a text-based name—enclose this text in double quotation marks, as in "Tilt the Wagon". For example, the time command requires time to be provided in text enclosed in double quotation mark, as in "19:45:23". Use all characters as required except for special characters—these require a two-character combination.

Related information

Special characters for text

To use special characters in the API commands, you must use a two-character combination.

Special character	Two-character combination	Description
"	\"	Double quotation mark
\	\\	Backslash
(	\(	Left bracket
)	\)	Right bracket
Line break	\n	New line—If the text can be displayed on more than one line, this sets the line break.
Send arbitrary code	\h##	Sends one arbitrary code defined by the two hexadecimal digits ##.

Sample messages and their meaning

For a more detailed understanding of messages and their meaning, review the provided sample messages.

Sample messages for a single projector

Messages can be sent and received for a single projector.

Message format	Function	Example
(Code Data)	SET Power on	(PWR 1)
(Code+Subcode Data)	SET input port configuration	(SIN+PORT 1)
(Code?)	REQUEST (what is current power state?)	(PWR?)
(Code+Subcode?)	REQUEST (what is current input port configuration?)	(SIN+PORT?)
(Code!Data)	REPLY (power state is 1 "on")	(PWR!001 "On")
(Code+Subcode!Data)	REPLY (input port configuration is 1 "One-Port")	(SIN+PORT!001 "One-Port")
($Code Data)	SET AND ACKNOWLEDGE MESSAGE (change test pattern and request acknowledge)	($ITP 1)
$	REPLY with acknowledgment (from projector)	$

Sample messages for querying a projector

Messages to query a list, enabled state, and minimum/maximum values can be sent and received for a projector.

Options	Function	Example
Query a list	QUERY test pattern options	(ITP?L)
	REPLY test pattern options	(ITP!L001 001 00000 "Off") (ITP!L001 001 00001 "Grid") (ITP!L001 001 00002 "Gray Scale 16") (ITP!L001 001 00003 "Flat White") (ITP!L001 001 00004 "Flat Gray") ... (ITP!L000 001 00024 "Flare") (ITP!L111 "--END--")

Options	Function	Example
Query enabled state	QUERY test pattern enabled state	`(ITP?E)`
	REPLY test pattern (enabled)	`(ITP!E000)`
	REPLY test pattern (disabled)	`(ITP!E001)`
Query minimum/maximum	QUERY gamma slider minimum/maximum	`(GAM?M)`
	REPLY gamma minimum/maximum	`(GAM!M1000 3000)`

What is sent in a message

Although you send and read messages as strings of ASCII characters, the actual message travels as a sequence of bytes. Each character in this sequence requires one byte.

The following example illustrates a lamp limit is 2000 hours reply from the projector.

ASCII =	(	L	P	L	!	2	0	0	0	)
HEX =	0x28	0x4	0x50	0x28	0x21	0x32	0x30	0x30	0x30	0x29

Maximizing message integrity

For additional reassurance and/or maximum message integrity, insert one or two special characters.

Message requirement	Description
Acknowledgments	For assurance from Boxer 30 (or group of projectors) that a set message has been processed, request an acknowledgment.
	The acknowledgment is returned after the message has been received and fully executed by Boxer 30 (such as in the case of a source switch it is not sent until the switch is complete). If the message cannot be executed for some reason (such as invalid parameters, time-out, and so on) a NAK is returned instead (not-acknowledge). Requesting an acknowledgment serves no purpose when included in a request message, as the acknowledgment is redundant to the actual reply from Boxer 30. However, if requested, the dollar sign ($) acknowledgment from Boxer 30 follows the reply.
	There are two types of acknowledgments:
	• Simple Acknowledgments—Insert a dollar sign ($) character just after the start code bracket. This only returns a $. This only returns a dollar sign ($) on success, or a caret (^) on failure (NAK).
	• Full Acknowledgments—Insert a hash (#) character just after the start code bracket. This returns the message sent, as a reply.
	This is a quick way to confirm success with set messages and is useful with long distance communication links or where the projectors and/or images are not visible from the controller. Acknowledgments can also be a type of flow control.
Checksums	For maximum message integrity, add a checksum character ampersand (&) just after the start code bracket. You must also include the correct checksum total (0-255) just before

Message requirement	Description
	the end code bracket. Make sure to add a space before the calculated checksum to separate it from the last data parameter:
	The checksum is the low byte of the sum of the ASCII values of all characters between the start bracket and the beginning of the checksum, but not including either. It does include the space in front of the checksum.
	Calculate the checksum for the above set contrast to 64 command as follows:
	CHECKSUM EXAMPLE = & + c + o + n + 6 + 4 + 'space'
	= 26h+63h +6Fh +6E h +36h +$34h +$20h
	= 01F0h
	= F0h when only the low byte is used
	= 240
	Boxer 30 collects all of the message bytes as defined in the first byte of the message, then creates its own checksum value for comparison with the checksum included in the controller's message. If the values match, the message is considered to have been correctly received; otherwise, the message is discarded.
	Note the following:
	• h indicates a hex number.
	• If a request message has a checksum, so does the reply.
	• If using both acknowledge and checksum, either character can occur first.

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")
```

Descriptive error

The following error codes indicate a problem if a command cannot be performed.

Error code	Description	Error code	Description
3	Invalid parameter	105	Disabled control
4	Too many parameters	106	Invalid language
5	Too few parameters	107	Exceeded list size
6	Channel not found	110	Communication timeout
7	Command not executed	111	Communications failure
8	Checksum error	112	Failed to set hardware
9	Unknown request	113	Bad file
10	Error receiving serial data	114	Memory failure

Error code	Description	Error code	Description
101	Control not found	115	Not implemented
102	Subcontrol not found	116	Invalid security
103	Wrong control type	117	Invalid access group
104	Invalid value	118	System busy - Try again later

Flow control

Normally messages can be sent to the projector before processing of earlier messages is complete—Boxer 30 stores messages in a buffer until ready to process. However, if a series of messages is sent, Boxer 30 may not be able to process them as fast as they arrive and the buffer becomes full.

If this happens, Boxer 30 sends the 13h (Xoff) code to instruct the controller (or any devices preparing to transmit) to cease transmission. At this point, the controller must respond immediately and send no more than 10 extra characters or they may be lost (such as, Boxer 30 can accommodate the receipt of up to 10 more bytes after it sends 13h (Xoff)). When the buffer is once again available, Boxer 30 sends a 11h (Xon) command to resume transmission.

Xon and Xoff controls apply to both directions of communication. Boxer 30 does not send more than three characters after it has received a 13h (Xoff) code.

Serial API commands

The Boxer 30 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.

Commands

Command	Description	Values
ADR?	Checks the current projector address. (Read-only)	—
ADR <value>	Sets the projector address to <value>. (Saved value)	0 to 999 65535 = Reserved broadcast address

Examples

Set all devices to address 0: `(65535 ADR 0)`
Set first device at address 0 to address to 5: `(0 ADR 5)`

Query address for all devices and return results to address 1001:
`(65535 1001ADR?)`
Result:
`(01001 00005ADR!005)`

ALC–Ambient Light Correction

Adjusts the image to help compensate for brighter or darker ambient light conditions.

Commands

Command	Description	Values
ALC <value>	Adjusts the image to help compensate for ambient light conditions. This command is only available if the video electronics are on. (Saved value)	0 = No correction (Default) 1 to 100 = Adjusts the image for darker environments -1 to -100 = Adjusts the image for brighter environments

Examples

Do not adjust the image: `(ALC 0)`
Adjust the image for darker environments: `(ALC 50)`

APW–Auto Power On

Automatically powers up the projector to the on state if the projector was on when the AC power was lost.

Commands

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

Examples

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

Related information

PWR–Power (on page 51)

ASU–Auto Setup

Automatically readjusts various video controls for the active video source to produce an optimal image on screen.

Commands

Command	Description	Values
ASU	Automatically readjusts various video controls for the active video source to produce an optimal image on the screen. This command is only available if the active display has a signal.	—

Examples

Perform auto setup on the active video source:
(ASU)

BDR–Baud Rate

Sets the baud rate for a serial communications port.

Commands

Command	Description	Values
BDR+PRTA?	Returns the baud rate for the RS232-IN port. (Read-only)	—
BDR+PRTA <value>	Sets the baud rate for the RS232-IN port. This command requires service level access. (Saved value)	1 = 2400 2 = 9600 3 = 19200 4 = 38400 5 = 57600 6 = 115200 (Default baud rate on each port)

Examples

Verify that RS232-IN is set to 115200 bits per second:
(BDR+PRTA?)
Result:
(BDR+PRTA!006 "115200")
Set the baud rate on port A to 115200 bits per second:
(BDR+PRTA 6)

BGC–Base Gamma Curve

Applies a predefined gamma transfer function to the image.

Commands

Command	Description	Values
BGC <value>	Applies a predefined gamma transfer function to the image. This command is only available if the video electronics are on. (Saved value)	0 = sRGB (Default) 2 = Power Law Function 3 = M-Series (Standard) 4 = ITU-R BT.1886

Examples

Select the sRGB gamma transfer function: (BGC 0)
Select a Power Law function with a 2.6 exponent: (BGC 2) Result: (GAM 2600)

BLK–Blanking

Crops certain pixels from any edge of the display.

Commands

Command	Description	Values
BLK+<command>?	Returns the percentage value for the specified command. (Read-only)	command = BOTP, LFTP, RGTP, or TOPP
BLK+BOTP <percentage>	Sets the percentage of pixels to blank from the bottom of the projector output.	0 to 250 0 (Default) 250 = 25%
BLK+LFTP <percentage>	Sets the percentage of pixels to blank from the left side of the projector output.	
BLK+RGTP <percentage>	Sets the percentage of pixels to blank from the right side of the projector output.	
BLK+TOPP <percentage>	Sets the percentage of pixels to blank from the top of the projector output.	
BLK+RSTP	Resets the blanking parameters to zero.	—

Examples

Crop 25% of pixels from the top edge of the display: `(BLK+TOPP 250)`
Crop 4% of the pixels from the left side of the display: `(BLK+LFTP 40)`

BST–Built-in Self Test

Performs self-checks in Boxer 30 that can be safely executed either in standby, on, or cool down mode. Do not execute this command while Boxer 30 is warming up.

Commands

Command	Description	Values
BST?L	Returns a list of available test suites. (Read-only)	—
BST <suite>	Executes the test suite specified.	0 = All Tests 1 = Image processor board tests 2 = Formatter tests 3 = Active backplane tests 4 = Video path tests
BST+TEST?L	Returns a list of available tests. (Read-only)	—
BST+TEST <index>	Executes the specified test.	<index> = Test provided by the BST+TEST?L command

Examples

Retrieve the list of test suites/tests as of v1.1.0 software:
`(BST?L)`
Result:
`(BST!L001 001 00000 "All Tests")`
`(BST!L001 001 00000 "All Tests")`
`(BST!L001 001 00001 "Image Processor Board Tests")`
`(BST!L001 001 00002 "Formatter Tests")`
`(BST!L001 001 00003 "Active Backplane Tests")`
`(BST!L001 001 00004 "Video Path Tests")`
`(BST!L111 "--END--")`

Retrieve the list of test suites/tests as of v1.1.0 software:
`(BST+TEST?L)`
`...`

```
(BST+TEST!L001 001 00000 "ABP: Check FPGA voltages")
(BST+TEST!L001 001 00001 "HIP: Check FPGA voltages")
...
(BST+TEST!L111 "--END--")
```

Run all tests successfully:

`(BST 0)`

Result:

`(BST!000 "--OK--")`

Example of failed tests within the All Tests test suite:

`(BST 0)`

Result:

`(BST!001 "Fail" "no response on pin 1")`
`(BST!002 "Fail" "no additional details")`
`(BST!000 "Fail")`

Example of failing test 1:

`(BST+TEST 1)`

Result:

`(BST+TEST!001 "Fail" "no response on pin 1")`

CCA–Color Adjustment

Configures the color adjustments for the projector.

Use this command to also set the native colors for the projector.

Commands

Command	Description	Values
CCA+COPY <value>	Copies the values from one of the other pre-defined color tables into the custom color table. This command is only available if video electronics are on.	0 = Max Drives 1 = Color Temperature 2 = HD Video (ITU-RBT.709)
CCA+CTMP <value>	Sets the color temperature of the projector. This command is only available if the video electronics are on, the projector is configured to use Color Temperature for its color table, and Color Temperature is selected. (Saved value)	3200 to 9300
CCA+SLCT <value>	Sets the color table. This command is only available if the video electronics are on. (Saved value)	1 = Color Temperature—Selects color adjustments based on a color temperature 2 = HD Video (ITU-R BT.709) 3 = Custom settings

Command	Description	Values
CCA+RDCX <x coordinate for red> CCA+RDCY <y coordinate for red> CCA+GNCX <x coordinate for green> CCA+GNCY <y coordinate for green> CCA+BLCX <x coordinate for blue> CCA+BLCY <y coordinate for blue> CCA+WHCX <x coordinate for white> CCA+WHCY <y coordinate for white>	Defines a custom color table using x,y coordinates, scaled by a factor of 10,000. For example, an x value of 3350 corresponds to x=0.3350 in the CIE 1931 chromaticity scale. This command is only available if the video electronics are on and Custom is selected. (Saved value)	The valid range for each value depends on which of the red/green/blue point is being adjusted.
CCA+GOFR <green of red saturation value> CCA+BOFR <blue of red saturation value> CCA+ROFG <red of green saturation value> CCA+BOFG <blue of green saturation value> CCA+ROFB <red of blue saturation value> CCA+GOFB <green of blue saturation value>	Defines a custom color table using saturation values. Each control represents a percentage of each native RGB component needed to produce a target RGB space. This command is only available if the video electronics are on and Custom is selected. (Saved value)	-1000 to 1000, where 1000 = 100% A negative value reduces the influence of the component by scaling up the other two components.
CCA+ROFR <red of red saturation value> CCA+GOFG <green of green saturation value> CCA+BOFB <blue of blue saturation value>	Defines a custom color table using saturation values. Each control represents a percentage of each native RGB component needed to produce a target RGB space. • Red of red is equivalent to red of white. • Green of green is equivalent to green of white. • Blue of blue is equivalent to blue of white. This command is only available if the video electronics are on and Custom is selected. (Saved value)	0 to 1000, where 1000 = 100%
CCA+ROFW <red of white saturation value> CCA+GOFW <green of white saturation value>	Defines a custom color table using saturation values. Each control represents a percentage of each native RGB component needed to produce a target RGB space.	0 to 1000, where 1000 = 100%

Command	Description	Values
CCA+BOFW <blue of white saturation value>	This command is only available if the video electronics are on and Custom is selected. (Saved value)	
CCA+RDPX <x coordinate for red> CCA+RDPY <y coordinate for red> CCA+GNPX <x coordinate for green> CCA+GNPY <y coordinate for green> CCA+BLPX <x coordinate for blue> CCA+BLPY <y coordinate for blue> CCA+WHPX <x coordinate for white> CCA+WHPY <y coordinate for white>	Sets the native color primaries for the projector using the x,y coordinate form, scaled by a factor of 10,000. For example, an x value of 3350 corresponds to x=0.3350 in the CIE 1931 chromaticity scale. This command is only available if the video electronics are on and Max Drives is selected. It is only available to a service user.	The valid range for each value depends on which of the red, green, blue, or white point is being adjusted.
CCA+RSET	Resets the native color primary settings to their defaults. If primary settings have not been saved (CCA+SAVE), this resets the primary settings to hard-coded defaults. This command is only available if video electronics are on. It is only available to a service user.	—
CCA+SAVE	Saves the current primary settings (for example, CCA+RDPX, and so on) as the new default color primary settings. Save these settings after calibrating the color primaries (such as measuring the primary x,y coordinates using a spectroradiometer or similar equipment). This command is only available if video electronics are on. It is only available to a service user.	—

Examples

Use a custom color table: `(CCA+SLCT 3)`
Reset values to "HD Video (ITU-R BT.709)": `(CCA+COPY 2)`
Change the x-coordinate of the custom color table to 0.6753:

(CCA+RDCX 6753)
Save the current color primary settings as the new calibrated defaults: (CCA+SAVE)
Reset the color primary settings to the saved calibrated defaults: (CCA+RSET)

CLE–Color Enable

Enables specific colors in the video path.

Commands

Command	Description	Values
CLE <color>	Enables specific colors in the video path. This command is only available if video electronics are on.	0 = White 1 = Red 2 = Green 3 = Blue 4 = Yellow 5 = Cyan 6 = Magenta

Examples

Display the red portion of image only: (CLE 1)
Display the blue portion of image only: (CLE 3)

CSP–Color Space

Changes the color space of the active signal for all inputs on the screen.

Commands

Command	Description	Values
CSP <color space>	Changes the color space of the active signal on the screen. This command is only available if video electronics are on. (Saved value)	0 = Auto Detect—Uses the detected colorspace in the active signal (Default) 1 = RGB—full range 2 = YCbCr HDTV (ITU-R BT.709) 3 = RGB—limited range 4 = YCbCr HDTV—expanded range

Examples

Set the color space to RGB (full range) irrespective of which channel is selected:
`(CSP 1)`
Set the projector to always automatically detect the color space:
`(CSP 0)`

DDD–Disable Dual-Link DVI Inputs

Enables or disables the secondary DVI receiver on all Dual-Link DVI cards.

Commands

Command	Description	Values
DDD <0 | 1>	Enables or disables the secondary DVI receiver on Dual-Link DVI cards. This command is only available if video electronics are on. (Saved value)	0 = Enables Dual-Link support (Default) 1 = Disables Dual-Link support

Examples

Enable Dual-Link support:
`(DDD 0)`
Disable Dual-Link support:
`(DDD 1)`

DEF–Factory Defaults

Resets Boxer 30 to its factory default values.

Note the following about this command:

- Performing this command while the power is on does not reset the Lamp Selection value while in limited mode.
- Resets the network settings to be DHCP enabled.
- Deletes all user profiles, warps, and blends.

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 Boxer 30 to factory defaults:
`(DEF 111)`

DMX–DMX/ArtNet

Configure DMX/Art-Net settings.

Commands

Command	Description	Values
DMX+CHAN <value>	Sets the base channel for Art-Net.	1 to 488 1 (Default)
DMX+ENBL <value>	Enables or disables the Art-Net interface.	0 = Disables the Art-Net interface (Default) 1 = Enables the Art-Net interface
DMX+NETS <value>	Configures the Art-Net network.	0 to 127 0 (Default)
DMX+SUBN <value>	Sets the Art-Net subnet.	0 to 15 0 (Default)
DMX+UNVS <value>	Configures the Art-Net universe number.	0 to 15 0 (Default)

Examples

Set the Art-Net base channel to 300:
`(DMX+CHAN 300)`
Set the Art-Net universe to 7:
`(DMX+UNVS 7)`

DTL–Sharpness Detail

Adjusts the sharpness of scaled video to alter the amount of visible detail.

This command does not affect unscaled video.

Commands

Command	Description	Values
DTL <value>	Adjusts the sharpness of scaled video to alter the amount of visible detail. This	0 to 49 = Softens the image 50 = Applies a moderate amount of filtering to the image (Default)

Command	Description	Values
	command is only available if video electronics are on. (Saved value)	51 to 100 = Sharpens the image

Examples

Apply a moderate amount of filtering to the image:

`(DTL 50)`

EBB–Black Level Blending

Selects the black level blend to use on the projector.

Commands

Command	Description	Values
EBB+SLCT?L	Retrieves a list of available black level blends. (Read-only)	—
EBB+SLCT <value>	Selects the black level blend to use on the projector. This command is only available if video electronics are on. (Saved value)	0 = Turns off black level blending (Default) 1 to 4 = Selects one of the four black level blends, if available 11 = Selects basic black level blending (built-in projector black level blending)

Examples

Turn off black level blending:

`(EBB+SLCT 0)`

Retrieve a list of black level blends:

`(EBB+SLCT?L)`

Select the second black level blend from the list of available blends:

`(EBB+SLCT 2)`

EBL–Edge Blending Selection

Selects the edge blend to use on the projector.

Basic edge blending can be configured using the projector's display panel, on-screen display or web interface. To add complex or advanced edge blend configurations, use the Twist (AutoCal) application.

Commands

Command	Description	Values
EBL+SLCT?L	Retrieves a list of available edge blends. (Read-only)	—
EBL+SLCT <value>	Selects the edge blend to use on the projector. This command is only available if video electronics are on. (Saved value)	0 = Turns off edge blending 1 to 4 = Selects one of the four edge blends, if available 11 = Selects basic edge blending (built-in projector edge blending)

Examples

Turn off edge blending: (EBL+SLCT 0)
Retrieve a list of edge blends: (EBL+SLCT?L)
Select the second edge blend from the list of available blends: (EBL+SLCT 2)

EDO–EDID Override

Configures which EDID is presented using inputs that support EDIDs (such as DisplayPort, HDMI, DVI, and so on).

Use this command to configure what Boxer 30 advertises regarding the type of signals it accepts. This command does not need to be set to accept a particular type of signal.

Commands

Command	Description	Values
EDO <rate>	Defines the expected frame rate regardless of the active window size of the signal. This command is only available if video electronics are on. (Saved value)	24 25 30 48 50 60 (Default)

Examples

Define the expected frame rate to be 24: (EDO 24)
Define the expected frame rate to be 60:

```
(EDO 60)
```

EME–Enable Asynchronous Serial Messages

Enables or disables the asynchronous serial messages that the projector occasionally transmits.

Commands

Command	Description	Values
EME <0 | 1>	Enables or disables asynchronous serial messages. (Saved value)	0 = Disables all asynchronous FYI/ERR serial messages 1 = Enables asynchronous FYI/ERR serial messages (Default)

Examples

Disable all asynchronous serial messages: `(EME 0)`
Enable all asynchronous serial messages: `(EME 1)`

ETP–Engine Test Pattern

Enables or disables the engine diagnostic test patterns.

Commands

Command	Description	Values
ETP <index>	Enables the engine diagnostic test patterns, indicated by the <index> parameter. This command is only available if video electronics are on.	0 = Flat Black 1 = Green 2 = Red 3 = Blue 4 = White 5 = 8x8 Green Checker 6 = 8x8 Red Checker 7 = 8x8 Blue Checker 8 = 8x8 White Checker 9 = Convergence Border & Cross (Green) 10 = Convergence Border & Cross (Red) 11 = Convergence Border & Cross (Blue) 12 = Convergence Border & Cross (White) 13 = Convergence Border & Cross (Multi-color)

Command	Description	Values
		14 = Convergence Border & Square (Green)
		15 = Convergence Border & Square (Red)
		16 = Convergence Border & Square (Blue)
		17 = Top Blue, Bottom Black
		18 = Left Blue, Right Black
		19 = Top Green, Bottom Black
		20 = Left Green, Right Black
		21 = Top Red, Bottom Black
		22 = Left Red, Right Black
		29 = Convergence Border & Cross (Multi-color2)
		45 = Convergence Border & Cross (Multi-color3)
		235 = Moving Circles (Green)
		236 = Moving Circles (Red)
		237 = Moving Circles (Blue)
		238 = Color Bars
		239 = Edge Blend Grid (Green)
		240 = Edge Blend Grid (Red)
		241 = Edge Blend Grid (Blue)
		242 = Edge Blend Grid (White)
		243 = 17 Point
		244 = Magenta
		245 = Cyan
		246 = Yellow
		247 = Diagonal Lines
		248 = Dark Segmented Ramp
		249 = Bright Segmented Ramp
		255 = Off

Examples

Enable the Flat Black test pattern:
`(ETP 0)`
Enable the Edge Blend Grid (Green) test pattern:
`(ETP 239)`

EVT–Event Manager

Retrieves a list of log messages for the current AC cycle from the projector.

Commands

Command	Description	Values
EVT	Returns all events starting from the most recent event on the projector back to AC start. (Read-only)	—
EVT <max>	Returns a set number of events starting from the most recent event on the projector going back to AC start. (Read-only)	max = Maximum number of events to return
EVT <start timestamp>	Returns all events from <start timestamp> back to current time. (Read-only)	start timestamp = String in the following format: yyyy = mm-dd hh:mm:ss
EVT <start timestamp> <end timestamp>	Returns all events between two specific timestamps. (Read-only)	start timestamp = String in the following format: yyyy = mm-dd hh:mm:ss end timestamp = String in the following format: yyyy = mm-dd hh:mm:ss

Examples

Retrieve all events since last AC start:

(EVT)

Result:

(EVT!000 "2013-03-17 04:47:18.340" "OK" "Setting Time to 06:47:17")

(EVT!001 "2013-03-17 04:01:13.860" "Error" "(SST+TEMP?003) Lamp Exhaust Temperature (Temp 3) = Communication fault (shutdown)")

(EVT!002 "2013-03-17 04:01:13.855" "Error" "(SST+TEMP?002) Air Intake Temperature (Temp 2) = Communication fault (shutdown)")

(EVT!003 "2013-03-17 04:01:13.824" "Error" "(SST+TEMP?000) Integrator Rod Temperature (Temp 1) = Communication fault (shutdown)")

(EVT!004 "2013-03-17 04:01:12.663" "Error" "(SST+VERS?017) Lamp Power Supply Version = Detection fault")

(EVT!"--END--")

Retrieve two most recent events:

(EVT 2)

Result:

(EVT!000 "2013-03-17 04:47:18.340" "OK" "Setting Time to 06:47:17")

(EVT!001 "2013-03-17 04:01:13.860" "Error" "(SST+TEMP?003) Lamp Exhaust Temperature (Temp 3) = Communication fault (shutdown)")

```
(EVT!"--END--")
```

Retrieve all events from a specific point in time until now:

```
(EVT "2013-03-17 04:01:13")
```

Result:

```
(EVT!000 "2013-03-17 04:47:18.340" "OK" "Setting Time to 06:47:17")
(EVT!001 "2013-03-17 04:01:13.860" "Error" "(SST+TEMP?003) Lamp Exhaust Temperature
(Temp 3) = Communication fault (shutdown)")
(EVT!002 "2013-03-17 04:01:13.855" "Error" "(SST+TEMP?002) Air Intake Temperature
(Temp 2) = Communication fault (shutdown)")
(EVT!003 "2013-03-17 04:01:13.824" "Error" "(SST+TEMP?000) Integrator Rod Temperature
(Temp 1) = Communication fault (shutdown)")
(EVT!"--END--")
```

Retrieve all events between two specific points in time:

```
(EVT "2013-03-17 04:01:08" "2013-03-17 04:01:12")
```

Result:

```
(EVT!004 "2013-03-17 04:01:12.663" "Error" "(SST+VERS?017) Lamp Power Supply Version
= Detection fault")
(EVT!"--END--")
```

FCS–Lens Focus Position Adjustment

Sets the lens focus to an absolute position.

This command is only enabled when the projector is on.

Commands

Command	Description	Values
FCS?m	Returns the minimum/maximum range of the zoom axis based on the last lens calibration performed. The returned range is persistent across AC cycles. (Read-only)	—
FCS <position>	Adjusts the lens focus to the specified position. The position is persistent across AC cycles.	position = A numeric value subject to the range returned in FCS?m

Examples

Move lens focus to position 500:

```
(FCS 500)
```

FIB–Christie Link Video Mode

Enables or disables the Christie Link video input.

Commands

Command	Description	Values
FIB+SLTA <0 | 1>	Enables or disables the Christie Link video input on the option card in slot 1. When enabled, other inputs (on the HBMIC) are inactive.	0 = Disables Christie Link video input (Default) 1 = Enables Christie Link video input
FIB+SLTB <0 | 1>	Enables or disables Christie Link input on the option card in slot 2. When enabled, other inputs (on the HBMIC) are inactive.	0 = Disables Christie Link video input (Default) 1 = Enables Christie Link video input

Examples

Disable Christie Link video input on the option card in slot 1: `(FIB+SLTA 0)`
Enable Christie Link video input on the option card in slot 2: `(FIB+SLTB 1)`

FMD–Film Mode Detect

Enables or disables film motion detection.

Commands

Command	Description	Values
FMD <0 | 1>	Enables or disables automatic film mode (cadence). If disabled, it forces de-interlacing instead. This command is only available if video electronics are on and the signal is interlaced. (Saved value)	0 = Turns off film mode detection 1 = Turns on film mode detection (Default)

Examples

`(FMD 1)`

FRD–Frame Delay

Sets the delay between the input sync timing and the output sync timing.

The actual delay can vary based on the amount of processing applied to the image.

Commands

Command	Description	Values
FRD <delay>	Sets the frame delay, measured in 1/1000ths of a frame (based on the input frame rate). This command is only available if video electronics are on. (Saved value)	1000 to 3000 2000 = 2 frames (Default)
FRD+STAT?	Returns the actual frame delay in 1/1000ths of a frame. This value may be higher than the required delay as the minimum allowed delay differs for each of the various channel configurations. (Read-only)	—
FRD+TIME?	Returns a string representation of the actual frame delay, in milliseconds. (Read-only) Note: This representation in milliseconds is approximate and is for reference only.	—

Examples

Query the actual frame delay:

`(FRD+STAT?)`

Result:

`(FRD+STAT!1250)`

Query the actual frame delay, in microseconds:

`(FRD+TIME?)`

Result:

`(FRD+TIME!"33.33")`

Set the frame delay to 2.25 frames:

`(FRD 2250)`

Set the frame delay to 1.1 frames:

`(FRD 1100)`

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. This command is only available if video electronics are on.	0 = Disables freezing of current video (Default) 1 = Freezes the current video

Examples

Freeze the image: `(FRZ 1)`

GAM–Gamma Power Value

Defines the exponent used in a standard Power Law function.

This command is only available if the base gamma curve is set to Power Law function.

The gamma control and files are set when the PIU command is off.

Commands

Command	Description	Values
GAM <exponent>	Sets the exponent for the Power Law function used for the gamma transfer function. This command is only available if video electronics are on. (Saved value)	1000 to 3000 2200 (Default)
GAM+MAXL	Adjusts the maximum screen luminance, used by the ITU-R BT.1886 setting.	100 to 2000 1000 (Default)
GAM+MINL	Adjusts the minimum screen luminance, used by the ITU-R BT.1886 setting.	0 to 1000 10 (Default)
GAM+SLOP <value>	Defines the slope of the linear section at the bottom of the curve. This command is only available if video electronics are on. (Saved value)	1 to 100 1 (Default)

Examples

Set the base gamma curve function to 2.6: `(GAM 2600)`
Set the base gamma curve function to 1.0: `(GAM 1000)`

Related information

BGC–Base Gamma Curve (on page 18)

GIO–General Purpose Input/Output

Controls or monitors the state of the general purpose inputs and outputs.

The pins reserved for 12V and ground cannot be read, set, or configured. For a mapping of the IO pins to the physical connector pins, refer to the *Boxer 30 User Guide (P/N: 020-102016-XX)*.

Commands

Command	Description	Values
GIO+CNFG?	Returns the direction for the individual pins.	—
GIO+STAT?	Returns the status of all inputs. (Read-only)	—
GIO+STAT "<xxxxxxx>"	Gets the state of all inputs or sets the state of all outputs.	H = High L = Low X = No change

Examples

Get the status of all the inputs:
`(GIO+STAT?)`
Result:
`(GIO+STAT!"LLLLLLL")`
All inputs are low.

Set the status of the general purpose outputs:
`(GIO+STAT "HXLHLLL")`
Result:
Pins 1 and 4 are set to high; pin 2 has no change; Pins 2, 5, 6, and 7 are set to low.

Get the direction for the individual pins:
`(GIO+CNFG?)`
Result:
`(GIO+CONFG!"IIIIIII")`

HIS–Lamp History

Retrieves a history of lamps installed in the projector, including the currently installed lamp.

Each entry indicates lamp identification as well as various usage statistics collected while the lamp was installed.

The list is in reverse chronological order—meaning the first entry describes the current lamp, followed by the next most recent lamp, and so on, up to a maximum of 50 total entries.

Commands

Command	Description	Values
HIS?	Returns a list of entries in the lamp history. (Read-only) Each entry has the following format: <entry number> <install date> <serial #> <lamp type> <strikes> <failed strikes> <failed re-strikes> <unexpected lamp offs> <pre-installation hours> <total lamp hours>	entry number = Unique number identifying the entry install date = Date that the lamp entry was created serial # = Serial number of the lamp (an arbitrary string) lamp type = Type of lamp used strikes = Number of lamp strikes performed for this entry failed strikes = Number of failed strikes that occurred for this entry failed re-strikes = Number of times the lamp failed a re-strike for this entry unexpected lamp offs = Number of times the lamp unexpectedly turned off for this entry pre-installation hours = Number of hours that this lamp has been on, prior to being installed in the projector total lamp hours = Total number of hours (including the pre-installation hours) that the lamp has been on
HIS+LMP1? HIS+LMP2? HIS+LMP3? HIS+LMP4? HIS+LMP5? HIS+LMP6?	Returns all the entries found in the lamp memory module. (Read-only) Each entry has the following format: <entry number> <install date> <serial #> <lamp type> <strikes> <failed strikes> <failed re-strikes> <unexpected lamp offs> <pre-installation hours> <total lamp hours>	

Examples

Return the list of all lamps that have been installed in the projector: (HIS?) Result: (HIS!0000 "2015/05/19 09:37:50" "New_May15" "" 0094 0000 0000 0000 0153) (HIS!0001 "2015/04/27 15:03:10" "NewA2_Mar30" "" 0343 0000 0000 0505 0513) ... (HIS!0049 "2015/02/12" "Lamp4" "" 0000 0000 0000 0004 0000)
Return the list of entries in the Lamp A1 Lamp Memory Module: (HIS+LMP1?) Result: (HIS+LMP1!0000 "2015/05/19 09:37:50" "New_May15" "" 0094 0000 0000 0000 0153)

ITP–Test Pattern

Displays a test pattern.

Commands

Command	Description	Values
ITP <index>	Enables or disables test patterns. This command is only available if video electronics are on.	0 = Off (Default) 1 = Grid 2 = Grey Scale 16 3 = Flat White 4 = Flat Grey 5 = Flat Black 6 = Checker 7 = 17 Point 8 = Edge Blend 9 = Color Bars 10 = Multi Color 11 = RGBW Ramp 12 = Horizontal Ramp 13 = Vertical Ramp 14 = Diagonal Ramp 15 = Square Grid 16 = Diagonal Grid 17 = Maximum Activity 18 = Prism/Convergence 21 = Boresight 22 = Convergence 23 = Integrator Rod 25 = Resolution Demo
ITP+FREQ <value>	Sets the frequency at which the internal test patterns are displayed. This command is only available if video electronics are on.	24 to 500 60 (Default)
ITP+GRDC <0 | 1>	Enables multi-color or white-on-black grids for the Square Grid or Diagonal Grid test patterns. This command is only available if video electronics are on.	0 = White-on-black 1 = Multi-color (Default)
ITP+GRDM <0 | 1>	Enables moving or static grid for the Square Grid or Diagonal Grid test patterns. This command is only available if video electronics are on.	0 = Static (Default) 1 = Moving
ITP+GRDP <pitch>	Defines the spacing between lines used for the Square Grid and Diagonal Grid test patterns.	2 to 127

Command	Description	Values
	This command is only available if video electronics are on.	32 (Default)
ITP+GREY <grey level>	Defines the shade of grey for the Flat Grey test pattern. This command is only available if video electronics are on.	0 to 4095 2048 (Default)
ITP+RMPL <grey level>	Defines the starting (top/left) grey-level used for the Horizontal Ramp, Vertical Ramp, and Diagonal Ramp test patterns. This setting has no effect when the ramp is moving (such as ITP+RMPM is non-zero). This command is only available if video electronics are on.	0 to 4095 0 (Default)
ITP+RMPM <speed>	Defines the motion speed used for the Horizontal Ramp, Vertical Ramp, and Diagonal Ramp test patterns. This command is only available if video electronics are on.	0 to 100 0 (Default)
ITP+RMPS <slope>	Defines the slope used for the Horizontal Ramp, Vertical Ramp, and Diagonal Ramp test patterns. This command is only available if video electronics are on.	1 to 5 1 (Default)

Examples

Disable test patterns: `(ITP 0)`
Set the test pattern to the grid pattern: `(ITP 1)`
Enable a moving grid test pattern: `(ITP+GRDM 1)`

KEN–Keypad Enable

Enables or disables the IR or wired keypad sensors.

Commands

Command	Description	Values
KEN+FRNT <0 | 1>	Enables or disables the IR keypad sensor. (Saved value)	0 = Disables the front IR keypad sensor 1 = Enables the front IR keypad sensor (Default)
KEN+HDBT <0 | 1>	Enables IR over HDBaseT. (Saved value)	0 = Disables IR over HDBaseT (Default) 1 = Enables IR over HDBaseT

Command	Description	Values
KEN+REAR <0 | 1>	Enables or disables the rear IR keypad sensor. (Saved value)	0 = Disables the rear IR keypad sensor 1 = Enables the rear IR keypad sensor (Default)
KEN+WIRE?	Returns the current wired jack enabled state. (Read-only)	—
KEN+WIRE <0 | 1>	Enables or disables the wired keypad sensor. (Saved value)	0 = Disables the wired keypad jack 1 = Enables the wired keypad jack (Default)

Examples

Get the current wired jack enabled state: (KEN+WIRE?)
Disable the front IR sensor: (KEN+FRNT 0)
Disable the rear IR sensor: (KEN+REAR 1)

LCB–Lens Motor Calibration

Calibrates all of the lens motors.

This command is only enabled when the projector is on.

Commands

Command	Description	Values
LCB 1	Runs calibration on all lens motors.	1
LCB+HOME	Moves all lens motors back to the center flag for each axis and sets their respective positions to 0.	—
LCB+ZOOM 1	Calibrates the zoom motor.	1

Examples

Start calibration: (LCB 1)
Move the lens back to the home position: (LCB+HOME)

LHO–Lens Horizontal Position Adjustment

Sets the lens horizontal location to an absolute position.

This command is only available when the projector is on.

Commands

Command	Description	Values
LHO?m	Returns the minimum and maximum range of the zoom axis based on the last lens calibration performed. The returned range is persistent across AC cycles. (Read-only)	—
LHO <position>	Adjusts the horizontal location of the lens to the specified position. The position is persistent across AC cycles.	position = Numeric value subject to the range returned in LHO?m

Examples

Move the lens to position 500 on the horizontal axis:

```
(LHO 500)
```

LMV–Lens Move

Adjusts all aspects of the lens position using a single command.

Commands

Command	Description	Values
LMV <horizontal> <vertical> <zoom> <focus>	Moves the lens to an absolute position as specified by each of the four arguments.	Minimum and maximum of each axis = Dependent on the projector and the installed lens Maximum horizontal range = -1600 to 1600 Maximum vertical range = -1600 to 1600
LMV+HSTP <relative steps>	Moves the horizontal motor a relative number of steps.	negative steps = Moves the display left positive steps = Moves the display right The maximum absolute value is dictated by the current location of the motor and the range of the axis (see the LMV command above).
LMV+VSTP <relative steps>	Moves the vertical motor a relative number of steps.	negative steps = Moves the display down positive steps = Moves the display up The maximum absolute value is dictated by the current location of the motor and the range of the axis (see the LMV command above).

Command	Description	Values
LMV+FSTP <relative steps>	Moves the focus motor a relative number of steps.	negative steps = Focuses outward positive steps = Focuses inward The maximum absolute value is dictated by the current location of the motor and the range of the axis (see the LMV command above).
LMV+ZSTP <relative steps>	Moves the zoom motor a relative number of steps.	negative steps = Makes the display smaller positive steps = Makes the display larger The maximum absolute value is dictated by the current location of the motor and the range of the axis (see the LMV command above).
LMV+HRUN <-1 | 0 | 1>	Starts and stops the horizontal motor.	-1 = Moves the display left 0 = Stops the motor 1 = Moves the display right
LMV+VRUN <-1 | 0 | 1>	Starts and stops the vertical motor.	-1 = Moves the display down 0 = Stops the motor 1 = Moves the display up
LMV+FRUN <-1 | 0 | 1>	Starts and stops the focus motor.	-1 = Moves the display outward 0 = Stops the motor 1 = Moves the display inward
LMV+ZRUN <-1 | 0 | 1>	Starts and stops the zoom motor.	-1 = Makes the display smaller 0 = Stops the motor 1 = Makes the display larger

Examples

Set the lens to H:1000, V:1500, Z:500, F:500: `(LMV 1000 1500 500 500)`
Start to move horizontal motor toward positive max position: `(LMV+HRUN 1)`
Stop the vertical motor: `(LMV+VRUN 0)`
Start moving the zoom motor towards the negative max position: `(LMV+ZRUN -1)`
Move the horizontal motor 45 steps in the positive direction: `(LMV+HSTP 45)`

LOC–Localization Settings

Sets the localization options such as language and display options for temperature units.

Commands

Command	Description	Values
LOC+LANG?	Returns the language used by the selected display. (Read-only)	—
LOC+LANG <value>	Sets the system language.	0 = English (Default) 1 = French 2 = German 3 = Spanish 4 = Italian 5 = Chinese (Simplified) 6 = Japanese 7 = Korean 8 = Russian
LOC+TEMP?	Returns the temperature units used by the selected display. (Read-only)	—
LOC+TEMP <0 | 1>	Sets the temperature units.	0 = Celsius (Default) 1 = Fahrenheit

Examples

Get the language: (LOC+LANG?) Result: (LOC+LANG!001)
Set the language to French: (LOC+LANG 1)
Set the temperature to Fahrenheit: (LOC+TEMP 1)

LOE–Video Loop Out Enable

Enables or disables video loop out on the THIC, 3GIC, and TDPIC cards.

Commands

Command	Description	Values
LOE <0 | 1>	Enables or disables video loop out. This command is only available if video electronics are on and it only applies to option cards that have loop out. (Saved value)	0 = Disables video loop out 1 = Enables video loop out (Default)

Examples

Disable video loop out: `(LOE 0)`
Enable video loop out: `(LOE 1)`

LOP–Lamp Selection

Selects a lamp to turn on or off while in limited power mode.

If LOP or LOP+MULT try to enable any lamps that are not installed, the command fails.

Commands

Command	Description	Values
LOP <lamp>	Selects a lamp to turn on or off while in limited power mode. This command is disabled while in the Power On state. (Saved value)	1 = Lamp A1 (Default) 2 = Lamp A2 3 = Lamp A3 4 = Lamp B1 5 = Lamp B2 6 = Lamp B3
LOP+MULT <value>	Selects which lamps are meant to be active. At least one lamp must be active. This command is only available in full power mode. (Saved value) Valid bitmapped fields: • bit0 = Lamp A1 • bit1 = Lamp A2 • bit2 = Lamp A3 • bit3 = Lamp B1	value = A bitmapped field ranging from 1 to 63 63 = All lamps are active (Default)

Command	Description	Values
	• bit4 = Lamp B2 • bit5 = Lamp B3	

LOP+MULT valid values

The model of projector determines the number of lamps in the projector.

Value	Lamp A1 (bit0)	Lamp A2 (bit1)	Lamp A3 (bit2)	Lamp B1 (bit3)	Lamp B2 (bit4)	Lamp B3 (bit5)
1	On	Off	Off	Off	Off	Off
2	Off	On	Off	Off	Off	Off
3	On	On	Off	Off	Off	Off
4	Off	Off	On	Off	Off	Off
5	On	Off	On	Off	Off	Off
6	Off	On	On	Off	Off	Off
7	On	On	On	Off	Off	Off
8	Off	Off	Off	On	Off	Off
9	On	Off	Off	On	Off	Off
10	Off	On	Off	On	Off	Off
11	On	On	Off	On	Off	Off
12	Off	Off	On	On	Off	Off
13	On	Off	On	On	Off	Off
14	Off	On	On	On	Off	Off
15	On	On	On	On	Off	Off
16	Off	Off	Off	Off	On	Off
17	On	Off	Off	Off	On	Off
18	Off	On	Off	Off	On	Off
19	On	On	Off	Off	On	Off
20	Off	Off	On	Off	On	Off
21	On	Off	On	Off	On	Off
22	Off	On	On	Off	On	Off
23	On	On	On	Off	On	Off
24	Off	Off	Off	On	On	Off
25	On	Off	Off	On	On	Off
26	Off	On	Off	On	On	Off
27	On	On	Off	On	On	Off

Value	Lamp A1 (bit0)	Lamp A2 (bit1)	Lamp A3 (bit2)	Lamp B1 (bit3)	Lamp B2 (bit4)	Lamp B3 (bit5)
28	Off	Off	On	On	On	Off
29	On	Off	On	On	On	Off
30	Off	On	On	On	On	Off
31	On	On	On	On	On	Off
32	Off	Off	Off	Off	Off	On
33	On	Off	Off	Off	Off	On
34	Off	On	Off	Off	Off	On
35	On	On	Off	Off	Off	On
36	Off	Off	On	Off	Off	On
37	On	Off	On	Off	Off	On
38	Off	On	On	Off	Off	On
39	On	On	On	Off	Off	On
40	Off	Off	Off	On	Off	On
41	On	Off	Off	On	Off	On
42	Off	On	Off	On	Off	On
43	On	On	Off	On	Off	On
44	Off	Off	On	On	Off	On
45	On	Off	On	On	Off	On
46	Off	On	On	On	Off	On
47	On	On	On	On	Off	Off
48	Off	Off	Off	Off	On	On
49	On	Off	Off	Off	On	On
50	Off	On	Off	Off	On	On
51	On	On	Off	Off	On	On
52	Off	Off	On	Off	On	On
53	On	Off	On	Off	On	On
54	Off	On	On	Off	On	On
55	On	On	On	Off	On	On
56	Off	Off	Off	On	On	On
57	On	Off	Off	On	On	On
58	Off	On	Off	On	On	On
59	On	On	Off	On	On	On
60	Off	Off	On	On	On	On

Value	Lamp A1 (bit0)	Lamp A2 (bit1)	Lamp A3 (bit2)	Lamp B1 (bit3)	Lamp B2 (bit4)	Lamp B3 (bit5)
61	On	Off	On	On	On	On
62	Off	On	On	On	On	On
63	On	On	On	On	On	On

Examples

Use lamp A1 in limited power mode: `(LOP 1)`
Make all lamps active in the projector: `(LOP+MULT 63)`
Make lamp A1 and lamp B1 active: `(LOP+MULT 9)`

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.

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. (Saved value)	Any positive number

LPP–Lamp Power

Sets the amount of power going to the lamp.

Commands

Command	Description	Values
LPP <power>	Sets the power going to the lamp, in watts. (Saved value)	power = Number of watts to run the lamp at This is dependent on the type of lamp being used.
LPP?m	Returns the minimum and maximum power allowed for the current lamp. (Read-only)	—

Examples

Set the light source to 9:
`(LPP 0)`

LVO–Lens Vertical Position Adjustment

Sets the lens vertical location to an absolute position.

This command is only enabled when the projector is on.

Commands

Command	Description	Values
LVO?m	Returns the minimum and maximum range of the vertical axis based on the last lens calibration performed. The returned range is persistent across AC cycles. (Read-only)	—
LVO <position>	Adjusts the vertical location of the lens to the specified position. (Saved value) This position is persistent across AC cycles.	position = A numeric valuethat is subject to the range returned in LVO?m

Examples

Move the lens to position 500 on the vertical axis:
`(LVO 500)`

MSP–OSD Menu Position Presets

Sets the default menu position on the screen.

Commands

Command	Description	Values
MSP?	Returns the current on-screen display position preset. (Read-only)	—
MSP <value>	Changes the location of the on-screen display.	0 = Top left (Default) 1 = Top center 2 = Top right 3 = Center left 4 = Center 5 = Center right 6 = Bottom left

Command	Description	Values
		7 = Bottom center
		8 = Bottom right

Examples

Get current menu position preset:
`(MSP?)`

Set the on-screen display position to the top left corner of the screen:
`(MSP 0)`

NET–Network Setup

Modifies the network setup for this device.

By default, DHCP support is turned on.

Commands

Command	Description	Values
NET "<ip>" "<subnet>" "<gateway>"	Sets the projector network settings as specified. (Saved value)	All three arguments are strings and the gateway is optional.
NET+DGRP "<group>"	Sets the device group name for the projector. (Saved value) This can help simplify broadcast searching by organizing projectors into groups, particularly if a large number of projectors are on the same local network.	group = Group name for the projector
NET+DHCP 1	Enables DHCP. To turn off DHCP support, switch to a static IP by using the base command. (Saved value)	1
NET+ETH0?	Returns the projector IP address. (Read-only)	—
NET+GATE?	Returns the projector gateway address. (Read-only)	—
NET+HOST "<name>"	Sets the name for the projector. (Saved value) With this set, devices on the same network subnet as the projector can connect to it using the name: <name>.local.	name = Name for the projector
NET+MAC0?	Returns the MAC address of the Ethernet port. (Read-only)	—
NET+PORT?	Returns the TCP port used for the Christie serial protocol over Ethernet. (Read-only)	1024 to 49151 (with some exceptions) 3003 = Reserved on the projector and cannot be used for the Christie serial protocol

Command	Description	Values
NET+SUB0?	Returns the projector netmask. (Read-only)	—
NET+SWIT <0 | 1 | 2>	Sets the internal network switching mode.	0 = Split (Default) 1 = All ports joined 2 = HDBaseT joined with Ethernet (for network loop-through)

Examples

Set the static IP address to 192.168.1.100, with a netmask of 255.255.255.0, and no gateway: `(NET "192.168.1.100" "255.255.255.0")`
Turn on DHCP support: `(NET+DHCP 1)`

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)`

OTR–Output Resolution

Returns the maximum number of columns and rows for the display.

Commands

Command	Description	Values
OTR?	Returns the output resolution. (Read-only)	—
OTR+HRES?	Returns the maximum number of columns for the display. (Read-only)	—
OTR+VRES?	Returns the maximum number of rows for the display. (Read-only)	—

Examples

Get the current output resolution: `(OTR?)`
Get maximum number of vertical rows: `(OTR+VRES?)`

PNG–Ping

Returns basic projector information to the user, including the type of device and main software version.

Commands

Command	Description	Values
PNG?	Returns basic projector information (Read-only): <type> <major> <minor> <build> where: • <type> = Type of projector • <major>, <minor>, <build> = Software version	<type> valid values: 54 = D4K, Roadie 4K, D4KLH 55 = Boxer 56 = Christie Link 64 = Crimson 68 = Mirage SST, D4K SST

Examples

Send a ping to a 4K projector with v1.1.0 software:
 `(PNG?)`
 Result:
 `(PNG!054 001 001 000)`

PRO–Profile

Allows selection of a local profile on the projector.

Commands

Command	Description	Values
PRO?L	Returns the list of available local profiles. (Read-only)	—
PRO x	Selects local profile x and applies the profile to the projector. Selecting an empty profile does not do anything.	0 = Default 1 = \<custom 1> 2 = \<custom 2> … 10 = \<custom 410>

Examples

Apply the default profile to the projector: `(PRO 0)`
Apply custom profile 3 to the projector: `(PRO 3)`

PWR–Power

Changes the power state of the product.

If the housekeeping board suffers a failure while the projector is on, the projector remains on with fans running until AC power is removed. The (PWR0) command fails while the projector is in this state.

Commands

Command	Description	Values
PWR?	Returns the current power state of the projector. (Read-only)	000 = Standby 001 = On 010 = Cooling down 011 = Warming up
PWR <0 | 1>	Turns the projector on or off.	0 = Turns the projector off 1 = Turns the projector on
PWR+ELEC <0 | 1>	Keeps video electronics on in standby, regardless of lamp state. This command cannot be set but can be read during projector cool down.	0 = Disables electronics override (Default) 1 = Enables electronics override

Examples

Return the power setting for the projector:
 `(PWR?)`
 `(PWR!000 "Power Off")`

Turn off the projector: `(PWR 0)`
Turn on the projector: `(PWR 1)`

RAL–Remote Access Level

Sets the default remote serial protocol access level for any of the serial ports.

Commands

Command	Description	Values
RAL <value>	Sets the access level on all Ethernet port. (Saved value)	0 = No Access—Disables the port 1 = Login Required—Sets read-only access until a separate login is performed 2 = Free Access—Executes commands at the operator level unless a separate login is performed (Default)
RAL+PRTA <value>	Sets the access level for the RS232 port. (Saved value)	

Examples

Set port to Login Required: `(RAL+PRTA 1)`

RBT–Reboot

Reboots the projector.

This command only works if the projector is in standby mode.

Commands

Command	Description	Values
RBT 111	Reboots the projector. To prevent accidental use of this command, the number 111 must follow this command.	111

Examples

Reboot the projector:
`(RBT 111)`

SDI–SDI Payload Overrride

Overrides the SMPTE 352M payload for HBMIC-SDI inputs.

This setting applies to all HBMIC-SDI inputs in the system (such as, not per input).

Commands

Command	Description	Values
SDI <value>	Changes the HBMIC-SDI payload override setting. This command is only available if the video electronics are on. (Saved value)	0 = Auto Detect (Default) 1 = Custom 2 = 3G-A 1080p60 3 = 3G-A 1080p59.94 4 = 3G-A 1080p50 5 = 3G-A 2K60 6 = 3G-A 2K59.94 7 = 3G-A 2K50
SDI+PAYL "<custom string>"	Defines the customized SMPTE 352M payload as a 4-byte hex string when the SDI command is set to custom. For more details, contact Christie Technical Support. This command is only available if the video electronics are on. (Saved value)	custom string = 4-byte hex string in big-endian order: "<b0><b1><b2><b3>"

Examples

Set the SDI payload to the pre-defined 3G-A 1080p59.94 option:
`(SDI 3)`
Set the SDI payload to a custom entry, for example 1080p23.98.4:2:2:
`(SDI 1)`
`(SDI+PAYL "04C20500")`

SHU–Shutter

Opens and closes the shutter.

The command can also be used check if the shutter is currently opened or closed. It can also return an incorrect result if the shutter was manually opened or closed.

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)`

SIN–Select Input

Selects the active input.

Commands

Command	Description	Values
SIN?L	Returns a list of available inputs to select based on the selected port configuration. (Read-only)	—
SIN <input>	Selects a set of inputs based on the selected port configuration. This command is only available if video electronics are on. (Saved value)	input = Subject to the range returned in SIN?L
SIN+PORT <config>	Select an input port configuration to use. This command is only available if video electronics are on. (Saved value)	1 = One-Port (Default)

Examples

Return a list of available inputs: `(SIN?L)`
Use one port to display an image: `(SIN+PORT 1)`

SNM–SNMP Configuration

Configures SNMP support for the projector.

Commands

Command	Description	Values
SNM+LAMP <0 | 1>	Enables or disables light source faults. (Saved value)	0 = Disables light source faults 1 = Enables light source faults (Default)
SNM+LIFE <0 | 1>	Enables or disables light source life limit warnings. (Saved value)	0 = Disables light source life limit warnings 1 = Enables light source life limits (Default)
SNM+POWR <0 | 1>	Enables or disables power state changes. (Saved value)	0 = Disables power state changes 1 = Enables power state changes (Default)
SNM+READ "<password>"	Sets the password for SNMP notifications. (Saved value)	password = String value, maximum 32 characters Default password = private
SNM+SIGN <0 | 1>	Enables or disables video signal changes. (Saved value)	0 = Disables video signal changes 1 = Enables video signal changes (Default)
SNM+STAL <0 | 1>	Enables or disables fan/cooling faults. (Saved value)	0 = Disables fan/cooling faults 1 = Enables fan/cooling faults (Default)
SNM+TIP1 "<IP address>" SNM+TIP2 "<IP address>" SNM+TIP3 "<IP address>"	Sets up to three IP addresses for traps to be sent. (Saved value)	IP address = String value 0.0.0.0 disables notifications (Default)
SNM+THRM <0 | 1>	Enables or disables temperature faults. (Saved value)	0 = Disables temperature faults 1 = Enables temperature faults (Default)

Examples

Set the SNMP read community name to public: `(SNM+READ "public")`
Configure one of the client IPs to receive traps: `(SNM+TIP1 "192.168.1.25")`
Disable power state traps: `(SNM+POWR 0)`

SOR–Screen Orientation

Selects the orientation of the displayed image.

Commands

Command	Description	Values
SOR <value>	Changes the orientation of the displayed image. This command is only available if video electronics are on. (Saved value)	0 = Front projection (Default) 1 = Rear projection 2 = Front projection inverted 3 = Rear projection inverted

Examples

Turn on rear projection: (SOR 1)
Turn on front projection inverted: (SOR 2)

SPS–Splash Screen

Changes the characteristics of the displayed splash screen when no signal is present.

Commands

Command	Description	Values
SPS+COLR <value>	Changes the background color of the splash screen. This command is only available when video electronics are on. (Saved value)	1 = Red 2 = Green 3 = Blue 7 = Black (Default)

Examples

Set the splash screen to blue: (SPS+COLR 3)

SST–Projector Status

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

Status items for Boxer 30 are organized in the following groups:

Status group	Description
Alarm (SST+ALRM?)	Displays any status items not in the OK state. This group contains a dynamic number of status items. If everything in the projector is OK, this group is empty.
Configuration (SST+CONF?)	Displays values and fault conditions for configuration-related items.
System (SST+SYST?)	Displays values and fault conditions relating to the system and its health.
Signal (SST+SIGN?)	Displays values and fault conditions relating to the video signal status. (Read-only)
Lamp (SST+LAMP?)	Displays values and fault conditions for lamp-related items. (Read-only)
Version (SST+VERS?)	Displays values and fault conditions related to software and hardware versions. (Read-only)
Temperature (SST+TEMP?)	Displays values and fault conditions for temperature-related items. (Read-only)
Cooling (SST+COOL?)	Displays values and fault conditions related to cooling and fans. (Read-only)
Serial (SST+SERI?)	Displays values and fault conditions related to hardware serial numbers. (Read-only)

For more information about the status groups, items, and their states, see the *Boxer 30 Status System Guide (P/N: 020-102233-XX)*.

Commands

Command	Description	Values
SST?	Returns all status items. (Read-only) Each item is listed in the following format: (SST+<group>!<index> <state> "<value>" "<description>")	group = Provides the four letter identifier of the Status System group the item belongs to
SST+<group>?	Returns all status items within the specified four-letter group identifier.	index = Indicates the index value of the status item within the group
SST+<group>? <index>	Returns a specific status item within the specified four-letter group identifier. (Read-only)	state = Indicates the condition of the status item:
		000 = No errors or warnings
		001 = Warning
		002 = Error
		value = Presents the value of the status item
		description = Provides the descriptive name of the status item

Examples

Display the temperatures:

```
(SST+TEMP?)
```

Result:

```
...
```

```
(SST+TEMP!000 000 "21 °C" "Integrator Rod Temperature (Temp 1)")
(SST+TEMP!002 000 "21 °C" "Air Intake Temperature (Temp 2)")
(SST+TEMP!003 000 "21 °C" "Lamp Exhaust Temperature (Temp 3)")
(SST+TEMP!020 000 "28 °C" "Environmental Board Temperature") ...
```

Return item 20 of the temperature group:

```
(SST+TEMP?20)
```

Result:

```
SST+TEMP!020 000 "28 °C" "Environmental Board Temperature"
```

STH–Stealth Mode

Enables or disables Stealth mode.

Commands

Command	Description	Values
STH+MODE?	Returns the status of Stealth mode. (Read-only)	—
STH+MODE <0 | 1>	Enables or disables the Stealth mode. When Stealth mode is enabled, the status and shutter LEDS are turned off and the heartbeat feature on the display panel **Enter** key is disabled.	0 = Disables Stealth mode (Default) 1 = Enables Stealth mode

Examples

Disable Stealth mode:

```
(STH+MODE 0)
```

Enable Stealth mode:

```
(STH+MODE 1)
```

SZP–Size and Position

Changes the aspect ratio of the display.

By default, the projector maintains the aspect ratio and scale to either full width or full height (whichever edge is reached first). 16:9 content is scaled to full height with pillar boxes.

Commands

Command	Description	Values
SZP <value>	Changes the aspect ratio of the display. This command is only available if video electronics are on. (Saved value)	0 = Allows the projector to determine when to scale video (Default) 1 = None 2 = Full size (stretch horizontally and vertically) 3 = Full width (stretch horizontally) 4 = Full height (stretch vertically)

Examples

Allow the projector to determine when to scale video: (SZP 0)
Disable scaling the video: (SZP 1)
Stretch the video horizontally: (SZP 3)

THM–Video Thumbnails

Enables or disables the video thumbnails.

Commands

Command	Description	Values
THM <0 | 1>	Enables or disables the video thumbnails.	0 = Turns off video thumbnails 1 = Turns on video thumbnails (Default)

Examples

Disable the video thumbnails: (THM 0)
Enable the video thumbnails: (THM 1)

TMD–Time and Date

Sets the date and time in the real-time clock.

Commands

Command	Description	Values
TMD+DATE <date>	Sets the date for the clock.	<date> = String in the following format: YYYY/MM/DD
TMD+TIME <time>	Sets the time for the clock.	<time> = String in the following format: hh:mm:ss

Examples

Set the date to January 17th, 2020: (TMD+DATE "2020/01/17") Result: (65535 00000 FYI00916 "Setting Date to 2020/01/17")
Get the local time: (TMD+TIME?) Result: (TMD+TIME! "19:45:23")
Set the time to 3pm: (TMD+TIME "15:00:00") Result: (65535 00000 FYI00916 "Setting Time to 15:00:00")

UID–User ID

Changes the access level of the currently connected session.

Commands

Command	Description	Values
UID "<username>" "<password>"	Logs in using the specified user name and password.	username = String value password = String value

Examples

Display the current logged in user and their access level: (UID?)

Log out the current user:
`(UID)`

Log in as service using the default password:
`(UID "user" "user")`

UST–Enable UST Lens

Enables or disables the 0.38:1 UST lens keep-out area.

Commands

Command	Description	Values
UST+ENBL?	Returns if the UST lens keep-out area is enabled or not. (Read-only)	—
UST+ENBL <0 | 1>	Enables or disables the UST lens keep-out area. Changing this control resets the lens to the default home position.	0 = Uses the normal lens keep-out area (Default) 1 = Enables the UST lens keep-out area

Examples

Use the normal lens keep-out area:
`(UST+ENBL 0)`

Use the UST lens keep-out area:
`(UST+ENBL 1)`

WRP–Geometry Correction

Controls warping settings.

Basic warping/keystoning can be configured using the projector's side panel display, on-screen display or web interface. To add complex or advanced warping/keystone configurations, use the Christie Twist (AutoCal) application.

Commands

Command	Description	Values
WRP+KGAN?	Returns if gain compensation is enabled or disabled when 2D keystone is applied. (Read-only)	—
WRP+KGAN <value>	Enables or disables gain compensation when 2D keystone is applied.	0 = Disables gain compensation 1 = Enables gain compensation (Default)

Command	Description	Values
WRP+SLCT?L	Retrieves a list of available warp maps. (Read-only)	—
WRP+SLCT <value>	Changes the warp map to use on the projector. This command is only available if video electronics are on. (Saved value)	0 = Turns off warping 1 to 4 = Selects one of four warp maps, if available 11 = Selects on-board keystone correction mode

Examples

Disable warping: (WRP+SLCT 0)
Select the third warp map: (WRP+SLCT 3)
Retrieve a list of available warp maps: (WRP+SLCT?L)
Enable gain compensation: (WRP+KGAN 1)

ZOM–Lens Zoom Position Adjustment

Sets the lens zoom.

This command requires a zoom motor on the lens for it to work and is only available when the projector is on.

Commands

Command	Description	Values
ZOM?m	Returns the current minimum and maximum values for the zoom position based on the last lens calibration performed. The returned range is persistent across AC cycles. (Read-only)	—
ZOM <position>	Adjusts the lens zoom to the specified position. The position is persistent across AC cycles. (Save value)	position = Numeric value subject to the range returned in ZOM?m

Examples

Get the current minimum and maximum values for the zoom axis: (ZOM?m) Result:

```
(ZOM!M-2400 900)
```

Move the lens to position 500 for the zoom motor:

```
(ZOM 500)
```

Asynchronous messages

The projector can generate some asynchronous messages.

The following lists examples of each message, including why and when they are generated. Bolded and underlined text indicates a fixed part of the message.

Type	Message	Description
Card Detected	**(65535 00000 FYI01901 "Card x detected")**	Triggered when a new card is detected in slot X while the video electronics are already on.
Card Removed	**(65535 00000 FYI01901 "Card x removed")**	Triggered when a card is removed from slot X while the video electronics are on.
Date/Time	(**65535 00000 FYI00916** "Setting Date to 2018/05/20")	Generated when the date or time are changed, respectively.
	(**65535 00000 FYI00916** "Setting Time to 00:00:00")	
Factory defaults	(**65535 00000 FYI00919** "All settings have been restored to their factory defaults. Reboot is required to take effect.")	Generated when a factory default has been performed on the projector.
Networking	(**65535 00000 FYI00915** "Configured network: IP:192.168.228.6 Mask:255.255.252.0 Gateway:192.168.228.1")	Generated when the network settings have changed. Network settings can change due to a number of specific events such as: • Operator changes the network settings (through any of the standard interfaces). • DHCP lease is renewed. • Network cable was unplugged or plugged in.
Status	(**65535 00000 FYI00000** "(SST+LAMP?001) Lamp Hours = 00:00 (h:m)")	Generated when a status item changes from: • An error or warning state to an OK state. • An OK or error state to a warning state. • An OK or warning state to an error state.
	(**65535 00000 ERR00000** "System Warning: (SST+LAMP?001) Lamp Hours = N/A")	
	(**65535 00000 ERR00000** "System Error: (SST+VERS?003) Image Processor HW Version = Detection Fault")	

Corporate offices

Christie Digital Systems USA, Inc.
ph: 714 236 8610

Christie Digital Systems Canada Inc.
ph: 519 744 8005

Worldwide offices

Africa
ph: +27 (0)11 510 0094

Australia
ph: +61 (0) 7 3624 4888

Brazil
ph: +55 (11) 2548 4753

China (Beijing)
ph: +86 10 6561 0240

China (Shanghai)
ph: +86 21 6030 0500

Columbia
ph: +57 (318) 447 3179

Germany
ph: +49 (0) 221 99512 0

India
ph: +91 (080) 6708 9999

Japan (Tokyo)
ph: 81 3 3599 7481

Korea (Seoul)
ph: +82 2 702 1601

Mexico
ph: +52 55 4744 1790

Singapore
ph: +65 6877 8737

Spain
ph: +34 91 633 9990

Middle East
ph: +971 (0) 503 6800

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

United States (Arizona)
ph: 602 943 5700

Independent sales consultant offices

Italy
ph: +39 (0) 2 9902 1161

Russia
ph: +36 (0) 1 47 48 100

For the most current technical documentation, visit www.christiedigital.com.