

SIM2 Multimedia

# CRYSTALCUBE

**RS-232 Control**

Rev. 1.1 (28 July 2014)



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## Revision History

Rev.	Date	Software Version	Description of Change
1.1	28 July 2014	D12	Initial version.

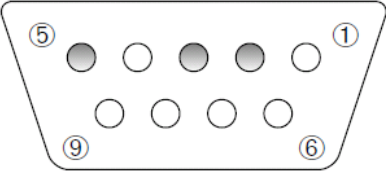
# 1. Introduction

This document describes how to interface the CRYSTALCUBE projector with a Home Theatre control system (or a PC) over a direct serial connection.

## 1.1. Setting up the RS-232C Serial connection

Follow these steps to configure the control system (or the PC) serial port.

- Switch off the control system (or the PC) and the projector.
- Use a standard straight<sup>1</sup> serial cable with 9 pin female to the control system (or the PC) and 9 pin male to the Projector:

RS-232C Control Port			
	Pin No	Signal	Definition
 D-SUB 9-pin (female)	1	-	Not Used
	2	TD	Transmit Data
	3	RD	Receive Data
	4	-	Not Used
	5	GND	Ground
	6	-	Not Used
	7	-	Not Used
	8	-	Not Used
	9	-	Not Used

- Make sure the distances between equipment do not exceed the specifications of the interface (15 m or 50 feet).
- Switch on the control system (or the PC) and, after start up, switch on the projector.
- Set the Serial Port Parameters as shown below:

Communication Parameters	
Parameter	Value
Transfer Rate	9600 bps
Data Bits	8
Parity Bit	None
Stop Bit	1
Flow Control	None

- Set the control system (or the PC program) Communication Mode to Binary (or Hex). ASCII mode is also supported.
- Set the control system interface (or the PC communication program) Display Mode to Hex.

<sup>1</sup>A cable that connects identical pin numbers in each connector: pin 2 connects to pin 2, pin 3 to pin 3 and pin 5 to pin 5.

## 1.2. Execution of the command

Command execution time may vary from 0.1 to 2.0 seconds, depending on the operation that have been requested. If the projector is busy when a command is sent, the unit may not accept the command. When several commands are to be sent one after the other, sufficient time between them should be allowed. When the unit is switched on from Standby wait 15 seconds before sending commands or reading messages sent by the projector.

## 2. Commands

In this section, serial commands (and respective responses) are listed. Commands (and responses) could be sent in Hex Format or in ASCII Format.

Spaces between bytes in the hex commands (for example: 56 39) have been inserted just to make the command more readable and are not part of the command itself.

Commands do not require any termination character: do not add <LF>, <CR>, <EOT> or the like at the end of the given series of bytes.

### 2.1. Remote Control Keys Codes

The following commands are meant to emulate button presses on the CRYSTALCUBE IR Remote Control. Like remote button presses they interact with the OSD of the projector.

ITEM (Refer to the UM)	Key	HEX Command	ASCII Command
1	POWER OFF	56 Xh Xh 53 30 30 30 32 0D	VxxS0002
2	HDMI2	56 Xh Xh 53 30 32 30 39 0D	VxxS0209
3	PC	56 Xh Xh 53 30 32 30 31 0D	VxxS201
4	VIDEO	56 Xh Xh 53 30 32 30 34 0D	VxxS0204
5	UP CURSOR	56 Xh Xh 53 30 34 30 31 0D	VxxS0401
5 – 8	KEYSTONE	56 Xh Xh 53 30 33 30 33 nh 0D	VxxS0303n
7	RIGHT CURSOR	56 Xh Xh 53 30 34 30 34 0D	VxxS0404
8	DOWN CURSOR	56 Xh Xh 53 30 34 30 32 0D	VxxS402
9	ASPECT RATIO	56 Xh Xh 53 30 33 30 31 nh 0D	VxxS0301n
11	2D → 3D	<i>See “3D Status” and “3D Format” strings in the “Operation commands” section of this document.</i>	
12	BRIGHT	56 Xh Xh 53 30 31 30 31 nh 0D	VxxS0101n
13	SHARP	56 Xh Xh 53 30 31 30 35 nh 0D	VxxS0105n
14	COLOR	56 Xh Xh 53 30 31 30 33 nh 0D	VxxS0103n
15	TINT	56 Xh Xh 53 30 31 30 34 nh 0D	VxxS0104n
16	BLANK	56 Xh Xh 53 30 33 30 32 nh 0D	VxxS0302n
17	FREEZE	56 Xh Xh 53 30 33 30 34 nh 0D	VxxS0304n
20	VOL -	56 Xh Xh 53 30 33 30 35 nh 0D	VxxS0305n
21	VOL +	56 Xh Xh 53 30 33 30 35 nh 0D	VxxS0305n
22	MUTE	56 Xh Xh 53 30 34 31 33 0D	VxxS0413
23	CONTRAST	56 Xh Xh 53 30 31 30 32 nh 0D	VxxS0102n
25	MENU	56 Xh Xh 53 30 34 31 31 0D	Vxxs0411
26	LEFT CURSOR	56 Xh Xh 53 30 34 30 33 0D	VxxS0403
27	COMP	56 Xh Xh 53 30 32 30 38 0D	VxxS0208
28	HDMI 1	56 Xh Xh 53 30 32 30 36 0D	VxxS0206
29	POWER ON	56 Xh Xh 53 30 30 30 31 0D	VxxS0002

Refer to the User Manual for the Remote Control layout.

Refer to the section “Operation Commands” to understand how the HEX and ASCII commands are structured.

Refer to the related section of this guide for more details regarding the command.

## 2.2. Operation Commands

All the projectors has got an ID (Identification number).

Check in the OSD -> SETTINGS2 ->ADVANCED 1 -> PROJECTOR ID the ID of the projector.

The commands are structure as below:

### HEX COMMAND

Example:

POWER ON Command:

56 X X 53 30 30 30 31 0D -> where X X is the hex conversion of the projector ID digits.

### ASCII

Example POWER ON Command:

VXXS0001 -> where X X is the projector ID.

It is possible to control any projector ID (without taking in account which is the projector ID) entering the 99 value.

Then the example above will be:

### HEX COMMAND

56 39 39 53 30 30 30 31 0D (hex conversion of 99 -> 39 39)

### ASCII

V99S0001

**All the commands beneath listed, are explained taking into account a projector ID equal to 99 (this for an immediate use of the command).**

If there is a loop of projectors with different IDs and need to manage them individually, it is necessary to follow the instructions explained above.

### Power On

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
ON	56 39 39 53 30 30 30 31 0D	V99S0001	Pass	50 0D	P
			Fail	46 0D	F

### Power Off

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
OFF	56 39 39 53 30 30 30 32 0D	V99S0002	Pass	50 0D	P
			Fail	46 0D	F

### Resync

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Get	56 39 39 53 30 30 30 33 0D	V99S0003	Pass	50 0D	P
			Fail	46 0D	F

### Lamp Hours

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Get	56 39 39 47 30 30 30 34 0D	V99G0004	Pass, Value	50 nh 0D	Pvalue
			Fail	46 0D	F

nh could be a number from 0 to 9999 in hexadecimal. Every digit has to be converted in hex format.

Example:

Hex Response: 50 35 36 0D -> Lamp Hours 56

Pvalue could be a number from 0 to 9999.

Example:

ASCII Response: P56 -> Lamp Hours 56

## Air Filter Timer

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 30 30 35 <b>nh</b> 0D	V99S0005 <b>n</b>	Pass	50 0D	P
Get	56 39 39 47 30 30 30 35 0D	V99G0005	Pass, Value	50 <b>nh</b> 0D	<b>PValue</b>
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from 0 to 999999 (in hexadecimal). Every digit has to be converted in hex.

Example: set 256

56 39 39 53 30 30 30 35 32 35 36 0D

### ASCII Command:

**n** could be a number from 0 to 999999.

Example: set 256

V99S0005256

## Display Mode

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 38 <b>nh</b> 0D	V99S0108 <b>n</b>	Pass	50 <b>nh</b> 0D	<b>PValue</b>
Get	53 39 39 47 30 31 30 38 0D	V99G0108	Pass, Value	50 <b>nh</b> 0D	<b>PValue</b>
				Presentation: 50 30 0 D	Pres: P0
				Bright: 50 31 0D	Bright: P1
				Game: 50 32 0D	Game: P2
				Movie: 50 33 0D	Movie: P3
				TV: 50 34 0D	TV: P4
				sRGB: 50 35 0D	sRGB: P5
				BLACKBOARD: 50 36 0D	BLACKB: P6
				User : 50 37 0D	User: P7
		Fail	46 0D	F	

HEX Command	ASCII Command
<b>nh</b> could be:	<b>n</b> could be:
30 Presentation	0 Presentation
31 Bright	1 Bright
32 Game	2 Game
33 Movie	3 Movie
34 TV	4 TV
35 sRGB	5 sRGB
36 BLACKBOARD	6 BLACKBOARD
37 User	7 User
Example: set Movie	Example: set DLP SYNC
56 39 39 53 30 31 30 38 <b>33</b> 0D	V99S0108 <b>3</b>

## Brightness

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 31 nh 0D	V99S0101n	Pass	50 0D	P
Get	56 39 39 47 30 30 30 35 0D	V99G0101	Pass, Value Fail	50 nh 0D 46 0D	PValue F

### HEX Command :

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set 98

56 39 39 53 30 31 30 31 39 38 0D

### ASCII Command:

**n** could be a number from 0 to 100.

Example: set 98

V99S010198

## Contrast

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 32 nh 0D	V99S0102n	Pass	50 0D	P
Get	56 39 39 47 30 31 30 32 0D	V99G0102	Pass, Value Fail	50 nh 0D 46 0D	PValue F

### HEX Command :

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set 60

56 39 39 53 30 31 30 32 36 30 0D

### ASCII Command:

**n** could be a number from 0 to 100.

Example: set 60

V99S010260

## Sharpness

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 35 nh 0D	V99S0105n	Pass	50 0D	P
Get	56 39 39 47 30 31 30 35 0D	V99G0105	Pass, Value Fail	50 nh 0D 46 0D	PValue F

### HEX Command :

**nh** could be a number from 0 to 31 (in hexadecimal). Every digit has to be converted in hex.

Example: set 29

56 39 39 53 30 31 30 35 32 39 0D

### ASCII Command:

**n** could be a number from 0 to 31.

Example: set 29

V99S010529

## Gamma

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 37 <b>nh</b> 0D	V99S0107 <b>n</b>	Pass	50 <b>nh</b> 0D	PValue
Get	56 39 39 47 30 31 30 37 0D	V99G0107	Pass, Value	50 <b>nh</b> 0D	PValue
				1.8: 50 30 0 D	1.8: P0
				2.0C: 50 31 0D	2.0C: P1
				2.2: 50 32 0D	2.2: P2
				2.4: 50 33 0D	2.4: P3
				B&W: 50 34 0D	B&W: P4
				Linear: 50 35 0D	Linear: P5
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 1.8 31 2.0C 32 2.2 33 2.4 34 B&W 35 Linear Example: set B&W 56 39 39 53 30 31 30 37 <b>34</b> 0D	<b>n</b> could be: 0 1.8 1 2.0C 2 2.2 3 2.4 4 B&W 5 Linear Example: set B&W V99S0107 <b>4</b>

## Color Temperature

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 47 30 31 30 36 <b>nh</b> 0D	V99S0106 <b>n</b>	Pass	50 <b>nh</b> 0D	PValue
Get	56 39 39 47 30 31 30 36 0D	V99G0106	Pass, Value	50 <b>nh</b> 0D	PValue
				Warm: 50 30 0 D	Reset: P0
				Normal: 50 31 0D	Standby: P1
				Cold: 50 32 0D	Operation: P2
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 Warm 31 Normal 32 Cold Example: set Normal 56 39 39 47 30 31 30 36 <b>31</b> 0D	<b>n</b> could be: 0 Warm 1 Normal 2 Cold Example: set Normal V99S0106 <b>1</b>

## Video Saturation

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 33 <b>nh</b> 0D	V99S0103 <b>n</b>	Pass	50 0D	P
Get	56 39 39 47 30 31 30 33 0D	V99G0103	Pass, Value	50 <b>nh</b> 0D	PValue
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set 75

56 39 39 53 30 31 30 33 37 35 0D

### ASCII Command:

**n** could be a number from 0 to 100.

Example: set 75

V99S010375



## Video Tint

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 31 30 34 nh 0D	V99S0104n	Pass	50 0D	P
Get	56 39 39 47 30 31 30 34 0D	V99G0104	Pass, Value Fail	50 nh 0D 46 0D	PValue F

### HEX Command :

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set 45

56 39 39 53 30 31 30 34 34 35 0D

### ASCII Command:

**n** could be a number from 0 to 100.

Example: set 45

V99S010445

## Color Manager

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set R Hue	56 39 39 53 30 33 34 30 nh 0D	V99S0340n	Pass	50 nh 0D	PValue
Set R Satur	56 39 39 53 30 33 34 31 nh 0D	V99S0341n			
Set R Gain	56 39 39 53 30 33 34 32 nh 0D	V99S0342n			
Set G Hue	56 39 39 53 30 33 34 33 nh 0D	V99S0343n			
Set G Satur	56 39 39 53 30 33 34 34 nh 0D	V99S0344n			
Set G Gain	56 39 39 53 30 33 34 35 nh 0D	V99S0345n			
Set B Hue	56 39 39 53 30 33 34 36 nh 0D	V99S0346n			
Set B Satur	56 39 39 53 30 33 34 37 nh 0D	V99S0347n			
Set B Gain	56 39 39 53 30 33 34 38 nh 0D	V99S0348n			
Set C Hue	56 39 39 53 30 33 34 39 nh 0D	V99S0349n			
Set C Satur	56 39 39 53 30 33 35 30 nh 0D	V99S0350n			
Set C Gain	56 39 39 53 30 33 35 31 nh 0D	V99S0351n			
Set M Hue	56 39 39 53 30 33 35 32 nh 0D	V99S0352n			
Set M Satur	56 39 39 53 30 33 35 33 nh 0D	V99S0353n			
Set M Gain	56 39 39 53 30 33 35 34 nh 0D	V99S0354n			
Set Y Hue	56 39 39 53 30 33 35 35 nh 0D	V99S0355n			
Set Y Satur	56 39 39 53 30 33 35 36 nh 0D	V99S0356n			
Set Y Gain	56 39 39 53 30 33 35 37 nh 0D	V99S0357n			
Get R Hue	56 39 39 47 30 33 34 30 0D	V99G0340	Pass, Value	50 nh 0D	PValue
Get R Satur	56 39 39 47 30 33 34 31 0D	V99G0341			
Get R Gain	56 39 39 47 30 33 34 32 0D	V99G0342			
Get G Hue	56 39 39 47 30 33 34 33 0D	V99G0343			
Get G Satur	56 39 39 47 30 33 34 34 0D	V99G0344			
Get G Gain	56 39 39 47 30 33 34 35 0D	V99G0345			
Get B Hue	56 39 39 47 30 33 34 36 0D	V99G0346			
Get B Satur	56 39 39 47 30 33 34 37 0D	V99G0347			
Get B Gain	56 39 39 47 30 33 34 38 0D	V99G0348			
Get C Hue	56 39 39 47 30 33 34 39 0D	V99G0349			
Get C Satur	56 39 39 47 30 33 35 30 0D	V99G0350			

Get C Gain	56 39 39 47 30 33 35 31 0D	V99G0351			
Get M Hue	56 39 39 47 30 33 35 32 0D	V99G0352			
Get M Satur	56 39 39 47 30 33 35 33 0D	V99G0353			
Get M Gain	56 39 39 47 30 33 35 34 0D	V99G0354			
Get Y Hue	56 39 39 47 30 33 35 35 0D	V99G0355			
Get Y Satur	56 39 39 47 30 33 35 36 0D	V99G0356			
Get Y Gain	56 39 39 47 30 33 35 37 0D	V99G0357			
			Fail	46 0D	F

**HEX Command :**

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set Y Gain to 75

56 39 39 53 30 33 35 37 37 35 0D

**ASCII Command:**

**n** could be a number from 0 to 100.

Example: set Y Gain to 75

V99S035775

**White Balance**

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set R Gain	56 39 39 53 30 33 33 30 nh 0D	V99S0330n	Pass	50 nh 0D	PValue
Set G Gain	56 39 39 53 30 33 33 31 nh 0D	V99S0331n			
Set B Gain	56 39 39 53 30 33 33 31 nh 0D	V99S0332n			
Get R Gain	56 39 39 47 30 33 33 30 0D	V99G0330	Pass, Value	50 nh 0D	PValue
Get G Gain	56 39 39 47 30 33 33 31 0D	V99G0331			
Get B Gain	56 39 39 47 30 33 33 31 0D	V99G0332			
			Fail	46 0D	F

**HEX Command :**

**nh** could be a number from 0 to 100 (in hexadecimal). Every digit has to be converted in hex.

Example: set R Gain to 66

56 39 39 53 30 33 33 30 36 36 0D

**ASCII Command:**

**n** could be a number from 0 to 100.

Example: set R Gain to 66

V99S033066

**Source**

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 32 30 nh 0D	V99S020n	Pass	50 nh 0D	PValue
Get	56 39 39 47 30 32 32 30 0D		Pass, Value	50 nh 0D	PValue
				RGB: 50 31 0D	RGB: P1
				RGB2: 50 32 0D	RGB2:P2
				DVI: 50 33 0D	DVI: P3
				VIDEO: 50 34 0D	VIDEO: P4
				S-VIDEO: 50 35 0D	S-VIDEO: P5
				HDMI 1: 50 36 0D	HDMI 1: P6
				BNC: 50 37 0D	BNC: P7
				COMPONENT: 50 38 0D	COMPONENT: P8
				HDMI2: 50 39 0D	HDMI2: P9
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 31 RGB 32 RGB2 33 DVI 34 VIDEO 35 S-VIDEO 36 HDMI 1 37 BNC 38 COMPONENT 39 HDMI2 Example: set COMPONENT 56 39 39 53 30 32 30 <b>38</b> 0D	<b>n</b> could be: 31 RGB 32 RGB2 33 DVI 34 VIDEO 35 S-VIDEO 36 HDMI 1 37 BNC 38 COMPONENT 39 HDMI2 Example: set COMPONENT V99S0208

### Projection Mode

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 38 <b>nh</b> 0D	V99S0308n	Pass	50 <b>nh</b> 0D	PValue
Get	53 39 39 47 30 33 30 38 0D	V99G0308	Pass, Value	50 <b>nh</b> 0D	PValue
				Front: 50 30 0 D	Front: P0
				Rear: 50 31 0D	Rear: P1
				Ceiling: 50 32 0D	Ceiling: P2
				Rear+Ceiling: 50 33 0D	Rear+Ceiling: P3
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 Front 31 Rear 32 Ceiling 33 Rear+ Ceiling Example: set Rear 56 39 39 53 30 33 30 38 <b>31</b> 0D	<b>n</b> could be: 0 Front 1 Rear 2 Ceiling 3 Rear+ Ceiling Example: set Rear V99S03081

### Aspect Ratio

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 31 <b>nh</b> 0D	V99S0301n	Pass	50 <b>nh</b> 0D	PValue
Get	53 39 39 47 30 33 30 31 0D	V99G0301	Pass, Value	50 <b>nh</b> 0D	PValue
				Fill: 50 30 0 D	Fill: P0
				4:3: 50 31 0D	4:3: P1
				16:9: 50 32 0D	16:9: P2
				Letter Box: 50 33 0D	Letter Box: P3
				Native: 50 34 0D	Native: P4
				2.35:1: 50 35 0D	2.35:1: P5
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 Fill 31 4:3 32 16:9 33 Letter Box 34 Native 35 2.35:1 Example: set 16:9 56 39 39 53 30 33 30 31 <b>32</b> 0D	<b>n</b> could be: 0 Fill 1 4:3 2 16:9 3 Letter Box 4 Native 5 2.35:1 Example: set 16:9 V99S03012

### Auto Keystone

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 33 nh 0D	V99S0303n	Pass	50 nh 0D	PValue
Get	56 39 39 47 30 33 30 33 0D	V99G0303	Pass, Value	50 nh 0D	PValue
				OFF: 50 30 0 D	OFF: P0
				ON: 50 31 0D	ON: P1
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 OFF 31 ON Example: set ON 56 39 39 53 30 33 30 33 31 0D	<b>n</b> could be: 0 OFF 1 ON Example: set ON V99S03031

### Vertical Keystone

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 39 nh 0D	V99S0309n	Pass	50 0D	P
Get	56 39 39 47 30 33 30 39 0D	V99G0309	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

#### HEX Command :

**nh** could be a number from - 40 to + 40 (in hexadecimal).

From 0 ÷ 40, every digit has to be converted in hex.

Example: set + 12

56 39 39 53 30 33 30 39 31 32 0D

From -40 ÷ -1, the - sign and the digits has to be converted in hex

Example: set -12

56 39 39 53 30 33 30 39 2D 31 32

#### ASCII Command:

**n** could be a number from - 40 to + 40.

Example: set + 12

V99S030912

Example: set - 12

V99S0309-12

### Horizontal Keystone

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 30 nh 0D	V99S0310n	Pass	50 0D	P
Get	56 39 39 47 30 33 31 30 0D	V99G0310	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

#### HEX Command :

**nh** could be a number from - 20 to + 20 (in hexadecimal).

From 0 ÷ 20, every digit has to be converted in hex.

Example: set + 12

56 39 39 53 30 33 31 30 31 32 0D

From -20 ÷ -1, the - sign and the digits has to be converted in hex

Example: set -12

56 39 39 53 30 33 31 30 2D 31 32

#### ASCII Command:

**n** could be a number from - 20 to + 20.

Example: set + 12

V99S031012

Example: set - 12

V99S0310-12

## Digital Zoom

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Zoom +	56 39 39 53 30 34 31 34 0D	V99S0414	Pass	50 0D	P
Zoom -	56 39 39 53 30 34 31 35 0D	V99S0415	Pass	50 0D	p
Set	56 39 39 53 30 33 31 31 nh 0D	V99S0311n	Pass	50 0D	P
Get	56 39 39 47 30 33 31 31 0D	V99G0311	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from - 10 to + 10 (in hexadecimal).

From 0 ÷ 10, every digit has to be converted in hex.

Example: set + 10

56 39 39 53 30 33 31 31 30 0D

From -10 ÷ -1, the - sign and the digits has to be converted in hex

Example: set -10

56 39 39 53 30 33 31 31 2D 31 30

### ASCII Command:

**n** could be a number from - 10 to + 10.

Example: set + 10

V99S031110

Example: set - 10

V99S0311-10

## Volume

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 35 nh 0D	V99S0305n	Pass	50 0D	P
Get	56 39 39 47 30 33 30 35 0D	V99G0305	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from 0 to 30 (in hexadecimal). Every digit has to be converted in hex.

Example: set 29

56 39 39 53 30 33 30 35 32 39 0D

### ASCII Command:

**n** could be a number from 0 to 30.

Example: set 29

V99S030529

## Mute

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 34 31 33 0D	V99S0306	Pass	50 0D	P
			Fail	46 0D	F

This Command permit to toggle ON and OFF (sending one command at time) the mute state of the audio.

## Treble

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 36 nh 0D	V99S0306n	Pass	50 0D	P
Get	56 39 39 47 30 33 30 36 0D	V99G0306	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

HEX Command :

**nh** could be a number from 0 to 16 (in hexadecimal). Every digit has to be converted in hex.

Example: set 15

56 39 39 53 30 33 30 36 31 35 0D

ASCII Command:

**n** could be a number from 0 to 16.

Example: set 15

V99S030615

**Bass**

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 37 <b>nh</b> 0D	V99S0307 <b>n</b>	Pass	50 0D	P
Get	56 39 39 47 30 33 30 37 0D	V99G0307	Pass, Value	50 <b>nh</b> 0D	<b>PValue</b>
			Fail	46 0D	F

HEX Command :

**nh** could be a number from 0 to 16 (in hexadecimal). Every digit has to be converted in hex.

Example: set 12

56 39 39 53 30 33 30 37 31 32 0D

ASCII Command:

**n** could be a number from 0 to 12.

Example: set 12

V99S030712

**Blank**

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 32 <b>nh</b> 0D	V99S0302 <b>n</b>	Pass	50 <b>nh</b> 0D	<b>PValue</b>
Get	56 39 39 47 30 33 30 32 0D	V99G0302	Pass, Value	50 <b>nh</b> 0D	<b>PValue</b>
				OFF: 50 30 0 D	OFF: P0
			ON: 50 31 0D	ON: P1	
			Fail	46 0D	F

<u>HEX Command</u>	<u>ASCII Command</u>
<b>nh</b> could be: 30 OFF 31 ON Example: set ON 56 39 39 53 30 33 30 32 <b>31</b> 0D	<b>n</b> could be: 0 OFF 1 ON Example: set ON V99S0302 <b>1</b>

**Freeze**

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 30 34 <b>nh</b> 0D	V99S0304 <b>n</b>	Pass	50 <b>nh</b> 0D	<b>PValue</b>
Get	56 39 39 47 30 33 30 34 0D	V99G0304	Pass, Value	50 <b>nh</b> 0D	<b>PValue</b>
				OFF: 50 30 0 D	OFF: P0
			ON: 50 31 0D	ON: P1	
			Fail	46 0D	F

<u>HEX Command</u>	<u>ASCII Command</u>
<b>nh</b> could be: 30 OFF 31 ON Example: set ON 56 39 39 53 30 33 30 34 <b>31</b> 0D	<b>n</b> could be: 0 OFF 1 ON Example: set ON V99S0304 <b>1</b>

### 3D Status

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 35 <b>nh</b> 0D	V99S0315n	Pass	50 <b>nh</b> 0D	PValue
Get	53 39 39 47 30 33 31 35 0D	V99G0315	Pass, Value	50 <b>nh</b> 0D 3D OFF: 50 30 0 D DLP SYNC: 50 31 0D IR: 50 32 0D	PValue 3D OFF: P0 DLP SYNC: P1 IR: P2
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 3D OFF 31 DLP SYNC 32 IR Example: set DLP SYNC 56 39 39 53 30 33 31 35 <b>31</b> 0D	<b>n</b> could be: 0 3D OFF 1 DLP SYNC 2 IR Example: set DLP SYNC V99S0315 <b>1</b>

### 3D Inverter

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 36 <b>nh</b> 0D	V99S0316n	Pass	50 <b>nh</b> 0D	PValue
Get	53 39 39 47 30 33 31 36 0D	V99G0316	Pass, Value	50 <b>nh</b> 0D Disable: 50 30 0 D Enable: 50 31 0D	PValue Disable: P0 Enable: P1
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 Disable 31 Enable Example: set Enable 56 39 39 53 30 33 31 36 <b>31</b> 0D	<b>n</b> could be: 0 Disable 1 Enable Example: set DLP SYNC V99S0316 <b>1</b>

### 3D Format

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 37 <b>nh</b> 0D	V99S0317n	Pass	50 <b>nh</b> 0D	PValue
Get	53 39 39 47 30 33 31 37 0D	V99G0317	Pass, Value	50 <b>nh</b> 0D FS: 50 30 0 D T/B: 50 31 0D SBS: 50 32 0D	PValue FS: P0 T/B: P1 SBS: P2
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 FS - FRAME SEQUENTIAL 31 T/B - TOB/BOTTOM 32 SBS – SIDE BY SIDE Example: set T/B 56 39 39 53 30 33 31 37 <b>31</b> 0D	<b>n</b> could be: 0 FS - FRAME SEQUENTIAL 1 T/B - TOB/BOTTOM 2 SBS – SIDE BY SIDE Example: set DLP SYNC V99S0317 <b>1</b>

If the input source is a HDMI 1080p 24Hz the format FRAME PACKING will be enabled automatically.

## H Image Shift

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 34 nh 0D	V99S0314n	Pass	50 0D	P
Get	56 39 39 47 30 33 31 34 0D	V99G0314	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from - 20 to + 20 (in hexadecimal).

From 0 ÷ 10, every digit has to be converted in hex.

Example: set + 10

56 39 39 53 30 33 31 34 31 30 0D

From -20 ÷ -1, the - sign and the digits has to be converted in hex

Example: set -10

56 39 39 53 30 33 31 34 2D 31 30

### ASCII Command:

**n** could be a number from - 20 to + 10.

Example: set + 10

V99S031410

Example: set - 10

V99S0314-10

## V Image Shift

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 33 nh 0D	V99S0313n	Pass	50 0D	P
Get	56 39 39 47 30 33 31 33 0D	V99G0313	Pass, Value	50 nh 0D	PValue
			Fail	46 0D	F

### HEX Command :

**nh** could be a number from - 20 to + 20 (in hexadecimal).

From 0 ÷ 10, every digit has to be converted in hex.

Example: set + 10

53 39 39 53 30 33 31 33 31 30 0D

From -20 ÷ -1, the - sign and the digits has to be converted in hex

Example: set -10

53 39 39 53 30 33 31 33 2D 31 30

### ASCII Command:

**n** could be a number from - 20 to + 10.

Example: set + 10

V99S031310

Example: set - 10

V99S0313-10

## Lamp Mode

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Set	56 39 39 53 30 33 31 39 nh 0D	V99S0319n	Pass	50 nh 0D	PValue
Get	53 39 39 47 30 33 31 39 0D	V99G0319	Pass, Value	50 nh 0D	PValue
				ECO: 50 30 0 D	ECO: P0
				Normal: 50 31 0D	Normal: P1
			Fail	46 0D	F

HEX Command	ASCII Command
<b>nh</b> could be: 30 ECO 31 Normal Example: set ECO 56 39 39 53 30 33 31 39 <b>30</b> 0D	<b>n</b> could be: 0 ECO 1 Normal Example: set ECO V99S0319 <b>0</b>



## System Status

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Get	56 39 39 47 30 30 30 37 0D	V99G0007	Pass, Value	50 nh 0D	PValue
				Reset: 50 30 0 D	Reset: P0
				Standby: 50 31 0D	Standby: P1
				Operation: 50 32 0D	Operation: P2
				Cooling: 50 33 0D	Cooling: P3
			Fail	46 0D	F

## FW Version

Action	HEX Command	ASCII Command	Response	HEX Response	ASCII Response
Get	56 39 39 47 30 30 30 38 0D	V99G0008	Pass, Value	50 nh 0D	Pvalue
			Fail	46 0D	F

The Hex response could be a string like the follow one:

**50 48 54 31 38 36 2D 32 39 35 53 49 4D 32 2D 44 30 39 0D**

decoded in decimal format, its correspond to:

PHT186-295SIM2-D09

where PHT186-295SIM2 is the product label, and the D09 is the FW

The ASCII response will be:

PPHT186-295SIM2

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