

1.65" Full HD

LC-HDT10

EXPAND SERIAL FUNCTIONAL SPECIFICATION

S A N Y O

SANYO Electric CO., Ltd.
Consumer Group AV Solutions Company
Projector Business Unit

TITLE 1.65" Full HD Expand Serial Command Functional Specification	MODEL LC-HDT10
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1. Overview

- 1.1 This Functional Specification defines communication functions such as Network card for LC-HDT10 (1.65" Full HD 4-Lamp model)
- 1.2 The Projector Firmware Ver.1.x-ready.
- 1.3 Commands are to communicate to such as Wireless Imager, but most commands control a remote projector with PC installed RS232C. That's why commands are defined as expand serial commands
- 1.4 See 82.Command with Address Specification when using them.

2. Serial Interface Specification

2.1 Communication Specification

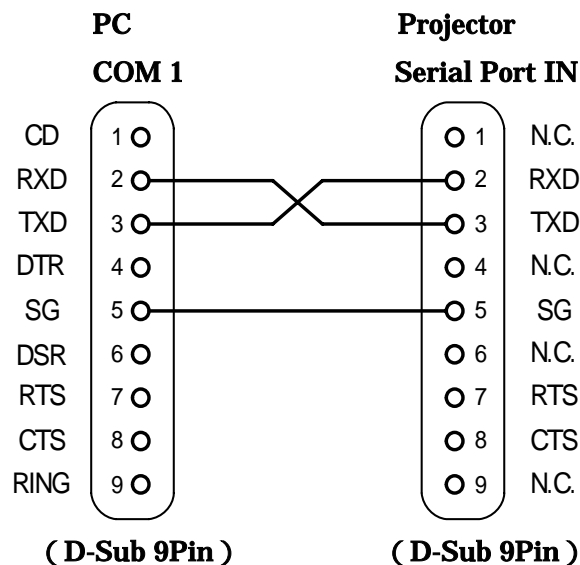
	Specification
Synchro System	Asynchronou
Transmission Speed	9600 / 19200
Data Length	8 bit
Parity	N/A
Stop Bit	1
Flow Control	N/A

Note1) transfer rate: initial setting value is 19200

Note2) transfer rate can be changed by service MODE

2.2 Connection

Must use a dedicated serial cable that come with the projector for a connection to a computer and a projector.



Connect COM port of computer to SERIAL PORT IN of COM Port.

COM Port (COM1 or COM2) of computer is specified by control software of computer.

3. Note for communications

3.1 The expand command is defined one Command/one line that starts “C” and ends carriage return (0x0D)

3.2 When a projector receives carriage return (0x0D), it starts decoding.

3.3 There are two types of command as below.

-Functional Execution

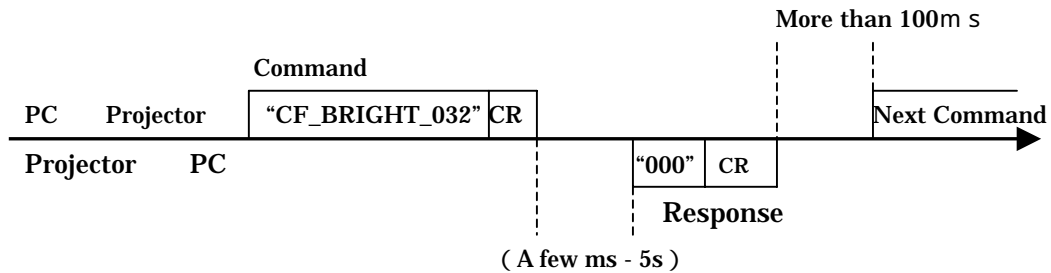
(Ex.) “CF_BRIGHT_032”[CR]

-Status Read Command

(Ex.) “CR_BRIGHT”[CR] Note) _means a space

3.4 When it takes more than one second to receive one Command, it does not execute the Command. Since the projector has received the first data “C”, when it takes more than 1 second until the projector receives a carriage return (0x0D), it clears information of buffer.

3.5 When command pipelining, it must wait sending next command after 100ms when the COMPUTER receives the return command.



3.5.1 When a COMPUTER sends next command before receiving a return command, the projector may not operate properly.

3.5.2 Except no response after 5 seconds

3.6 It takes about 5 seconds for internal initialization after plugging in AC. During this time it cannot process command. Do not issue any commands.

3.7 Serial commands are invalid when in services mode or displaying special menu.

4. Name Definition

4.1 Data from a controller to a projector is represented as COMMAND, and data from a projector to a controller for the incoming command is represented as RESPONSE.

4.2 [CR]: Carriage Return Code

The Command ends carriage return code. Also response Command ends carriage return, too.

4.3 _: Space Code

All space Code is indicated by (_).

4.4 %1: Parameter in Command

When there are some parameters, the parameters are defined as %2, %3...

4.5 %%%: Error Code from a projector

“000”: Normal Reception

See “ 7.Error Code Table “ for error number.

5. Functional Execution Command Table

5.1 Image Command Table

Execute command	Item
CF_BRIGHT_%1[CR]	Set Brightness value
CF_CONT_%1[CR]	Set Contrast value
CF_COLOR_%1[CR]	Set Color value
CF_TINT_%1[CR]	Set Tint value
CF_SHARP_%1[CR]	Set Sharpness value
CF_GAMMA_%1[CR]	Set-GAMMA value
CF_WBAL-R_%1[CR]	Set White Balance Red value
CF_WBAL-G_%1[CR]	Set White Balance Green value
CF_WBAL-B_%1[CR]	Set White Balance Blue value
CF_COLTEMP_%1[CR]	Set Color Temp value
CF_DENHCR_%1[CR]	Set Detail Enhancer value of Faroudja
CF_NZRED_%1[CR]	Set/Cancel Noise reduction
CF_PROGV_%1[CR]	Set/Cancel Progressive
CF_IMAGE_%1[CR]	Set Image MODE.
CF_IMAGEADJ_%1[CR]	Reset and store for Image Adjustment.
CF_APCTRL_%1[CR]	Set/Cancel Auto Picture Control

5.2 Display Command Table

Execute command	Item
CF_FSYNC_%1[CR]	Set Fine Sync value.
CF_TODOTS_%1[CR]	Set Total Dots value.
CF_CLAMP_%1[CR]	Set Clamp value.
CF_H-POS_%1[CR]	Set Horizontal Position value.
CF_V-POS_%1[CR]	Set Vertical Position value.
CF_DLINE_%1[CR]	Set Display Line value.
CF_DDOTS_%1[CR]	Set Display Dots value.
CF_SETDISPADJ_%1[CR]	Execute the setting value in Display adjustment menu to show up on the screen.
CF_ORGMODE_%1[CR]	This command select original signal that is specified by Display Adjust.
CF_MODESTORE_%1[CR]	Store the setting value in Display adjustment menu to Mode1-Mode20.
CF_MODEFREE_%1[CR]	Clear Mode %1 value and return to Free status.

5.3 Input Control Command Table

Execute command	Item
CF_INPUT_%1[CR]	Select Input.
CF_SOURCE_%1[CR]	Select Input Sauce.
CF_INPUT1_%1[CR]	Select Input-1 and also set input %1
CF_INPUT2_%1[CR]	Select Input-2 and also set input %1
CF_INPUT3_%1[CR]	Select Input-3 and also set input %1
CF_INPUT4_%1[CR]	Select Input-4 and also set input %1
CF_SYSTEM_%1[CR]	Select System.

5.4 Screen Command Table

Execute command	Item
CF_SCREEN_%1[CR]	Select Screen size.
CF_VSCALE_%1[CR]	Set V Scale
CF_VPOS_%1[CR]	Set V Position
CF_HSCALE_%1[CR]	Set H Scale
CF_HPOS_%1[CR]	Set H Position

5.5 Lamp Command Table

Execute command	Item
CF_LAMPH_%1[CR]	Reset lamp total running time.
CF_LAMPMODE_%1[CR]	Select lamp mode (Full/Half)
CF_AUTOLAMPCTRL_%1[CR]	Switch auto lamp control ON or OFF

5.6 Sound Command Table

Execute command	Item
CF_VOLUME_%1[CR]	Set Volume value
CF_MUTE_%1[CR]	Control Sound Mute ON/OFF
CF_BASS_%1[CR]	Set Bass value
CF_TREBLE_%1[CR]	Set Treble value
CF_BLTINSP_%1[CR]	Set Built-in Speaker ON or OFF

5.7 Setting Command Table

Execute command	Item
CF_BBACK_1[CR]	Set Blue Back function.
CF_DISP_%1[CR]	Set Display function.
CF_LOGO_%1[CR]	Set Logo function.
CF_CEIL_%1[CR]	Set Ceiling function.
CF_REAR_%1[CR]	Set Rear Function.
CF_RCODE_%1[CR]	Select Remote Control Reception Code.
CF_LANG_%1[CR]	Select OSD language.
CF_ON-STA_%1[CR]	Set Power ON Start Function.
CF_P-MANE_%1[CR]	Set Power management function.
CF_P-MANETIME_%1[CR]	Set Power management time
CF_FANSPEED_%1[CR]	Select Fan Speed.
CF_KEYDIS_%1[CR]	RC//KEY inhibit
CF_FDEFAULT_%1[CR]	Set Factory Default setting value

6. Status Read Command Table

6.1 IMAGE Status Read Command Table

Status read command	Item
CR_BRIGHT [CR]	Get Brightness
CR_CONT [CR]	Get Contrast
CR_COLOR [CR]	Get Color
CR_TINT [CR]	Get Tint
CR_SHARP [CR]	Get Sharpness
CR_GAMMA [CR]	Get-GAMMA
CR_WBAL-R [CR]	White Balance Red
CR_WBAL-G [CR]	White Balance Green
CR_WBAL-B [CR]	White Balance Blue
CR_COLTEMP [CR]	Get Color temperature setting value
CR_DENHCR [CR]	Get the Detail Enhancer value of Faroudja.
CR_NZRED [CR]	Get Noise reduction setting status.
CR_PROGV [CR]	Get Progressive setting value
CR_IMAGE [CR]	Get Selected. Image
CR_IMGGMD [CR]	Get Image-GAMMA setting value
CR_APCTRL [CR]	Get Auto Picture Correction status.

6.2 Display Status Read Command Table

Status read command	Item
CR_FSYNC [CR]	Get Fine Sync setting value
CR_TODOTS [CR]	Get Total Dots setting value
CR_CLAMP [CR]	Get Clamp setting value
CR_H-POS [CR]	Get Horizontal Position setting value
CR_V-POS [CR]	Get Vertical Position setting value
CR_DLINE [CR]	Get Display Line setting value
CR_DDOTS [CR]	Get Display Dots setting value
CR_ORGMODE [CR]	
CR_MODESTORE [CR]	Get Free or Store is selected for Display Adj.; MODE 1-20
CR_SETDISPADJ[CR]	Get current PC signal for PC display status.

6.3 Video Status Read Command Table

Status read command	Item
CR_SERSYS [CR]	Get selected current signal. When in AUTO MODE, it returns a result by AUTO detect.

6.4 Input Status Read Command Table

Status read command	Item
CR_INPUT [CR]	Get selected input status
CR_SOURCE [CR]	Get selected input Source status
CR_SRCINP1 [CR]	Get selected source for input 1.
CR_SRCINP2 [CR]	Get selected source for input 2.
CR_SRCINP3 [CR]	Get selected source for input 3.
CR_SRCINP4 [CR]	Get selected source for input 4.
CR_SYSTEM [CR]	Get selected system status in input MODE
CR_HMSLOT [CR]	Get total slot number.
CR_NMSLOT1 [CR]	Get a card name inserted to Slot 1.
CR_NMSLOT2 [CR]	Get a card name inserted to Slot 2.
CR_NMSLOT3 [CR]	Get a card name inserted to Slot 3.
CR_NMSLOT4 [CR]	Get a card name inserted to Slot 4.
CR_IDSLOT1 [CR]	Get ID for Slot 1.
CR_IDSLOT2 [CR]	Get ID for Slot 2.
CR_IDSLOT3 [CR]	Get ID for Slot 3.
CR_IDSLOT4 [CR]	Get ID for Slot 4.

6.5 Screen Status Read Command Table

Status read command	Item
CR_SCREEN [CR]	Get selected screen size status
CR_VSCALE [CR]	Get Scale setting status.
CR_VPOS [CR]	Get V Position setting status.
CR_HSCALE [CR]	Get H Scale setting status.
CR_HPOS [CR]	Get H Position setting status.

6.6 Lamp Status Read Command Table

Status read command	Item
CR_LAMPREPL [CR]	Get information for lamp replacement time.
CR_LAMPMODE [CR]	Get lamp MODE status
CR_AUTOLAMPCTRL [CR]	Get auto lamp control setting status
CR_LAMPSTS [CR]	Get lamp status
CR_INFLAMP [CR]	Get lamp switching status
CR_PROJH [CR]	Get projector total running time.
CR_HMLAMP [CR]	Get total lamp number

6.7 Sound Status Read Command Table

Status read command	Item
CR_VOLUME [CR]	Get Volume value
CR_MUTE [CR]	Get sound mute setting value
CR_BASS [CR]	Get Bass value.
CR_TREBLE [CR]	Get Treble value
CR_BLTINSP [CR]	Get Built-in Speaker setting status.

6.8 Setting Status Read Command Table

Status read command	Item
CR_BBACK [CR]	Get Blue Back setting value
CR_DISP [CR]	Get Display setting value
CR_LOGO [CR]	Get Log setting value
CR_RCODE [CR]	Get selected remote Control code status
CR_LANG [CR]	Get selected language.
CR_ON-STA [CR]	Get ON Start setting status
CR_P-MANE [CR]	Get Power management setting status
CR_P-MANE T I M E [CR]	Get the start time for Power management
CR_FANSPEED [CR]	Get selected FAN CONTROL SPEED status.
CR_KEYDIS [CR]	Get R C / K E Y prohibit status.

6.9 Other Status Read Command Table

Status read command	Item
CR_PRESSURE [CR]	Get Air Pressure data.
CR_SIGNAL [CR]	Get the status if there is signal or no signal
CR_VMUTE [CR]	Get No Show setting status
CR_FREEZE [CR]	Get Freeze Setting Status
CR_INFPPFAIL [CR]	Get information if the AC is abnormal status.
CR_TEMPWARN [CR]	Get if sensors are exceeding critical temperature or not
CR_TEMPFAIL [CR]	Get the temperature when sensors approached critical temperature

7. Error Code Table

Error Code	Contents
?	-When receives data that cannot be decoded -Parameter determination error (digit number error, and incorrect letter included)
000	NORMAL Reception (not error)
101	The function is not available in the selected. MODE.
102	Selected the value is out of range (Selected. value will not be reflected)
103	Command mismatched to the Hardware. (Command for unpopulated option function)
201	When sending command, the increment is maximum value or the decrement is minimum value.

8. Functional Execution Command

8.1 Format

1. The following format's commands issued form a PC

Pattern1:"CF_COMMAND"[CR]

Pattern2:"CF_COMMAND_%1 [CR]

CF_:Header

COMMAND:Letters

%1:Parameter(Letters)

_:Space (To separate COMMAND and parameter)

2. When a projector decoded a received data and ready to receive the next Command, it will return acknowledgment.

"000" [CR]: (0x06,0x0D) When received Function Execute Command

"nnn" [CR]:Unable to execute any value except "000" value for any specific reason.

See the Ode/ode for its contents

3. When received an undecodable data

Returns?" [CR]

8.2 Transfer Example

When setting projector total command to 1344 by expand command

PC → PJ : "CF_TODOTS_1344" [CR]

PC ← PJ : "000"[CR] ----- Reception OK

8.3 Operation Requirements

When the functional execution command is limited, the projector sends an error command as shown in the table below.

Projector Status	Available Function Execution Command
STANDBYMODE	C00:POWER ON
Processing Count Down	C00:POWER ON (Terminate Count Down)
Processing Cooling Down	N/A
Cooling Down due to abnormal temperature	N/A
Abnormal Temperature	N/A
Abnormal Power (60seconds after Power has turned to abnormal)	N/A
Processing Power Save Cooling Down	N/A
Processing Power Save	C00:POWER ON C01:POWER OFF

Note:) When the projector receives other commands in the above status, they return error code to show the status.

8.4 Image Command

8.4.1 CF_BRIGHT Command

COMMAND	"CF_BRIGHT_%1" [CR]	
%1	"000-063"----- Directly select the Bright Setting Value "UP"----- Bright setting value +1 "DN"----- Bright setting value -1	
Details	Set the User control Bright Value The value set by the command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power ON State.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.2 CF_CONT COMMAND

COMMAND	"CF_CONT_%1" [CR]	
%1	"000-063"----- Directly select for contrast setting value "UP"----- Contrast setting value "DN"----- Contrast setting value-1	
Details	Set the user Control contrast value. The value set by this command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power ON status.)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.3 CF_COLOR COMMAND

COMMAND	"CF_COLOR_%1" [CR]	
%1	"000-063"----- Directly Color setting value "UP"----- Color setting value+1 "DN"----- Color setting value-1	
Details	Set the user Control Color value. The value set by this command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power On state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.4 CF_TINT COMMAND

COMMAND	"CF_TINT_%1" [CR]	
%1	"000-063"----- Directly select for Tint setting value "UP"----- Current Setting value +1 "DN"----- Current Setting value-1	
Details	Set the user Control tint value. The value set by this command will not be save to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the NORMAL Power ON state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.5 CF_SHARP COMMAND

COMMAND	"CF_SHARP_%1" [CR]	
%1	"000-015"----- Directly select for Gamma setting value "UP"----- Current Sharpness setting value+1 "DN"----- Current Sharpness setting value -1	
Details	Set the user Control Sharpness value. The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is the usual Power ON state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.6 CF_GAMMA COMMAND

COMMAND	"CF_GAMMA_%1" [CR]	
%1	"000-015"----- Directly select for-GAMMA setting value "UP"-----GAMMA setting value+1 "DN"-----GAMMA setting value-1	
Details	Set the User Control-GAMMA Value The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays) Only valid when it is in the usual Power On state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.7 CF_WBAL-COMMAND

COMMAND	"CF_WBAL-%1_%2" [CR]	
%1	"R" ----- RED "G" ----- GREEN "B" ----- BLUE	
%2	"000-063"-- Directly select color value by White Balance %1 determination "UP"----- Color value for White Balance %1 determination +1 "DN"----- Color value for White Balance %1 determination -1	
Details	Set the user Control value by white balance %1 determination. The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power On state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.8 CF_COLTEMP COMMAND

COMMAND	"CF_COLTEMP_%1" [CR]	
%1	"000"..... XLow "001"..... Low "002".....MID "003"..... High	
Details	Set the Color Temp. (When it is in usual Power ON state, this is valid.) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power On state.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.9 CF_DENHCR COMMAND

Command	"CF_DENHCR_%1" [CR]	
%1	"000"- "015"..... Set Detail Enhancer value "UP" current setting value +1 "DN" current setting value -1	
Details	Set Detail Enhancer value for Faroudja input. (When it is in usual Power ON state, this is valid.) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

Command	“CF_NZRED_%1” [CR]	
%1	“OFF”..... Cancel Noise Reduction “L1”..... Set Noise Reduction L1 “L2”..... Set Noise Reduction L2 “L3”..... Set Noise Reduction L3	
Details	Set/Cancel Noise Reduction. (When it is in usual Power ON state, this is valid. The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.)	
Response	Acceptable	“000” [CR]
	Unacceptable	“Error Code” [CR]

COMMAND	“CF_PROGV_%1”[CR]	
%1	“ON”...Select Progressive “OFF”...Cancel Progressive	
Details	Set/Cancel for Progressive. (When it is in usual Power ON state, this is valid.) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (For STANDBYMODE, this value stays.) Only valid when it is in the usual Power On state.	
Response	Acceptable	“000”[CR]
	Unacceptable	“Error Code”[CR]

COMMAND	“CF_IMAGE_%1” [CR]	
%1	<p>“STANDPC” Standard (PC) (Image adjustment is set to factory default setting value)</p> <p>“STANDAV” Standard (AV) (Fixed value (factory default setting value) for a picture motion)</p> <p>“REAL” Real (Fixed value to display a graphic image with natural tone)</p> <p>“CINEMA” Cinema (Fixed value to focus on the tone reproduction for movie)</p> <p>“CUSTOM1”Image1 (the value is set and store by a user)</p> <p>“CUSTOM2”Image2 (the value is set and store by a user)</p> <p>“CUSTOM3”Image3 (the value is set and store by a user)</p> <p>“CUSTOM4”Image4 (the value is set and store by a user)</p> <p>“CUSTOM5”Image5 (the value is set and store by a user)</p> <p>“CUSTOM6”Image6 (the value is set and store by a user)</p> <p>“CUSTOM7”Image7 (the value is set and store by a user)</p> <p>“CUSTOM8”Image8 (the value is set and store by a user)</p> <p>“CUSTOM9”Image9 (the value is set and store by a user)</p> <p>“CUSTOM10” Image10 (the value is set and store by a user)</p>	
Details	<p>Select an Image Mode. (When it is in usual Power ON state, this is valid.)</p> <p>Parameter “CUSTOM1” to “CUSTOM10” are the same as “Image1” to “Image10” on OSD menu. The value set by this Command is stored in EEPROM. When ALL OFF the projector, the value will return to the original setting.</p>	
Response	Acceptable	“000” [CR]
	Unacceptable	“Error Code” [CR]

8.4.13 CF_IMAGEADJ COMMAND

Command	"CF_IMAGEADJ_%1" [CR]	
%1	"RST"-----Reset Image adjustment "STR1"----Store current image adjustment to Image 1 "STR2"----Store current image adjustment to Image 2 "STR3"----Store current adjustment to Image 3 "STR4"----Store current adjustment to Image 4 "STR5"----Store current image adjustment to Image 5 "STR6"----Store current adjustment to Image 6 "STR7"----Store current adjustment to Image 7 "STR8"----Store current image adjustment to Image 8 "STR9"----Store current adjustment to Image 9 "STR10"----Store current adjustment to Image 10	
Details	Reset or Store for image adjustment. (When it is in usual Power ON state, this invalid) "STR1"-"STR10" is the same as "Image1"-"Image10" when choosing "Store" on OSD menu. The setting value set in "Image1" to "Image10" is stored, so even if the projector is set to ALL OFF and is turned on again, the setting value will be able to be back.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.4.14 CF_APCTRL COMMAND

Command	"CF_APCTRL_%1" [CR]	
%1	"L1"..... Execute Auto Picture Control with Level1. "L2"..... Execute Auto Picture Control with Level2. "OFF"..... OFF Auto Picture Control	
Details	Set Auto Picture Control (When it is in usual Power ON state, this invalid)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5 Display Control Command

8.5.1 CF_FSYNC COMMAND

Command	"CF_FSYNC_%1" [CR]	
%1	Input is Computer	"0000-0031"---- Directly set Fine Sync setting value "UP"----- Fine Sync setting value+1 "DN"----- Fine Sync setting value-1
	Input is Video	"0000-0031"---- Directly set Fine Sync setting value "UP"----- Fine Sync setting value+1 "DN"----- Fine Sync setting value-1
Details	Set Fine Sync for PC signal (Only valid when it is in the usual Power On state) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (Stand By mode stays) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.2 CF_TODOTS COMMAND

Command	"CF_TODOTS_%1" [CR]	
%1	Input is Computer	"nnnn-9999"-- Directly set Total Dots value "nun" is minimum value. This is current Display Dots value + Horizontal position value "UP"----- Total Dots setting value +1 "DN"----- Total Dots setting value-1
Details	Set Total Dots of PC signal. (Only valid when it is in the usual Power On state) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (Standby mode stays) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.3 CF_CLAMP COMMAND

Command	"CF_CLAMP_%1" [CR]	
%1	Input is Computer	"0000-0127"---- Directly set Clamp setting value "UP"----- Clamp setting value +1 "DN"----- Clamp Setting value -1
	Input is Video	"0000-0127"---- Directly set Clamp setting value "UP"----- Clamp setting value +1 "DN"----- Clamp Setting value -1
Details	Set Clamp signal. (Only valid when it is in the usual Power On state) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (stay in Stand By mode) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.4 CF_H-POS COMMAND

Command	"CF_HPOS_%1" [CR]	
%1	Input is Computer	"0000-nnnn"-- Directly set Horizontal Position "nnnn" means maximum value. This result of current Total dots value-Display dots. "UP"----- Horizontal Position value +1 "DN"----- Horizontal Position value-1
	Input is Video	"0000-4095"-- Directly set Horizontal Position "nnnn" means maximum value. This result of current Total dots value-Display dots. "UP"----- Horizontal Position value +1 "DN"----- Horizontal Position value-1
Details	Set horizontal position of PC signal. (Only valid when it is in the usual Power On state) This value set by this Command will not be save do the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (stays in Stand By mode) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.5 CF_V-POS COMMAND

Command	"CF_VPOS_%1" [CR]	
%1	Input is Computer	"0000-nnnn"-- Directly set Vertical Position "nnnn" means maximum value. This value is from current Total Line value – display Line value. "UP"----- Vertical Position setting value +1. "DN"----- Vertical Position setting value-1
	Input is Video	"-mmmm-nnnn"-- Directly set Vertical Position "nnnn" means maximum value. This value is from current Total Line value – display Line value. "UP"----- Vertical Position setting value +1. "DN"----- Vertical Position setting value-1
Details	Set vertical position. (Only valid when it is in the usual Power On state) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (stays in Stand By mode) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.6 CF_DLINE COMMAND

Command	"CF_DLINE_%1" [CR]	
%1	Input is Computer	<p>"0100-nnnn"-- Directly specify display Line value. "nnnn" means maximum. This value is from current Total Line value – Vertical Position value.</p> <p>"UP"----- Display Line +1 "DN"----- Display Line -1</p>
	Input is Video	<p>"0100-nnnn"-- Directly specify display Line value. "nnnn" means maximum. This value is from current Total Line value – Vertical Position value.</p> <p>"UP"----- Display Line +1 "DN"----- Display Line -1</p>
Details	<p>Set Display Line. (Only valid when it is in the usual Power On state) The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (stays in Stand By mode) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.</p>	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.7 CF_DDOTS Command

Command	"CF_DDOTS_%1" [CR]	
%1	Input is Computer	<p>"0100-nnnn"-- Directly set Display Dots value. "nnnn" means maximum value. This value is from current Total Dots Value- Horizontal position value</p> <p>"UP"----- Display Dots +1 "DN"----- Display Dots -1</p>
	Input is Video	<p>"0100-nnnn"-- Directly set Display Dots value. Only "even number" is valid. When entering "odd number", the nearest young even number is used instead of the even number. (EX:0123 0122) "nnnn" means maximum value and is defined as default setting for switching signal.</p> <p>"UP"----- Display Dots +2 "DN"----- Display Dots -2</p>
Details	<p>Set Display Dots. The value set by this Command will not be saved to the projector. Therefore, when ALL OFF the projector, the value will return to the original setting. (stay in Stand By mode) (Only valid when it is in the usual Power On state) Note: When %1 is directly specified, this command is not enough to execute for the screen. To show up on the image, issue CF_SETPCADJ COMMAND.</p>	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.8 CF_SETDISPADJ COMMAND

Command	"CF_SETPCADJ_%1" [CR]	
%1	"PAL" "SECAM" "XGA1" "108060" "MODE16" "EXT24".....Etc.	
Details	<p>Execute the setting value in Display adjustment menu to show up on the screen.</p> <p>When %1 of Display Adjustment Command (Seven commands as below) is directly set by value, they will not be executed. The Commands, "CF_SETPCADJ_%1" is to execute the setting value. (Only valid when it is in the normal Power On state)</p> <p>.....CF_FSYNC CF_TODOTS CF_CLAMP CF_H-POS CF_V-POS CF_DLINE CF_DDOTS</p> <p>Note1) When %1 is EXT21-EXT60, issue the CF_SYSTEM command. Note1) When %1 is EXT21-EXT60, system display is ExMode.</p>	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.9 CF_ORGMODE COMMAND

Command	"CF_ORGMODE_%1" [CR]	
%1	"XGA1", "HDTV108060".....Etc	
Details	<p>This command select original signal that is specified by Display Adjust. (Only valid when it is in the normal Power On state)</p>	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.10 CF_MODESTORE COMMAND

Command	"CF_MODESTORE_%1" [CR]	
%1	Input is Video	"1"..... Store to Mode1 "2"..... Store to Mode2 "3"..... Store to Mode3 "4"..... Store to Mode4 "5"..... Store to Mode5 "6"..... Store to Mode6 "7"..... Store to Mode7 "8"..... Store to Mode8 "9"..... Store to Mode9 "10"..... Store to Mode10 "11"..... Store to Mode11 "12"..... Store to Mode12 "13"..... Store to Mode13 "14"..... Store to Mode14 "15"..... Store to Mode15
	Input is Computer	"16"..... Store to Mode16 "17"..... Store to Mode17 "18"..... Store to Mode18 "19"..... Store to Mode19 "20"..... Store to Mode20
Details	Store the current Display Adjustment status (each parameter status such as Total dots) to Custom Mode 1-Mod20. This command operates the same operation as storing to Mode1-Mode20 in Display Adjust Menu. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.5.11 CF_MODEFREE COMMAND

Command	"CF_MODEFREE_%1" [CR]	
%1	Input is Video	"1".....Set Free to Mode1 "2".....Set Free to Mode2 "3".....Set Free to Mode3 "4".....Set Free to Mode4 "5".....Set Free to Mode5 "6".....Set Free to Mode6 "7".....Set Free to Mode7 "8".....Set Free to Mode8 "9".....Set Free to Mode9 "10"..... Set Free to Mode10 "11"..... Set Free to Mode11 "12"..... Set Free to Mode12 "13"..... Set Free to Mode13 "14"..... Set Free to Mode14 "15"..... Set Free to Mode15
	Input is Computer	"16"..... Set Free to Mode16 "17"..... Set Free to Mode17 "18"..... Set Free to Mode18 "19"..... Set Free to Mode19 "20"..... Set Free to Mode20
Details	Clear the Custom Mode1-Mode20 to return to Free status. This command operates the same operation as setting free to Mode1-Mode20 in Display Adjust Menu. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.6 Input Control COMMAND

8.6.1 CF_INPUT COMMAND

Command	"CF_INPUT_%1" [CR]	
%1	"1"----- Select Input-1 "2"----- Select Input-2 "3"----- Select Input-3 "4"----- Select Input-4	
Details	Select Input. (Only valid when it is in the usual Power On state) The operation is the same as the projector button or the remote control button "INPUT".	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.6.2 CF_SOURCE COMMAND

Command	"CF_SOURCE_%1" [CR]	
%1	"DIGITAL" Select DVI Digital of computer "ANALOG" Select Analog input of computer "VIDEO" Select Composite Video input. "S-VIDEO" Select S-Video input. "SCART" Select SCART Input. "HDCP" Select HDCP Input. "YC" Select Y/C input. "YPBPR" Select Y/Pb/Pr input "YPBCR" Select Y/Cb/Cr input "SDI1" Select SDI1 input "SDI2" Select SDI2 input	
Details	Select current selected (input) source. (Only valid when it is in the usual Power On state) When selected Input does not meet the requirement for the specified %1, the response will be "101" and the command is not be executed.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.6.3 CF_INPUT1 ~ 4 COMMAND

Command	"CF_INPUT1_%1_%2" [CR]	
%1	"1"..... Specify Input 1 "2"..... Specify Input 2 "3"..... Specify Input 3 "4"..... Specify Input 4	
%2	"DIGITAL"..... Select Computer DVI Digital "ANALOG"..... Select Computer Analog Input "VIDEO"..... Select Composite Video Input "S-VIDEO"..... Select S-Video Input "SCART"..... Select SCART Input "HDCP"..... Select HDCP Input "YC"..... Select Y/C Input "YPBPR"..... Select Y/Pb/Pr Input "YPBCR"..... Select Y/Cb/Cr Input "SDI1"..... Select SDI1 Input "SDI2"..... Select SDI2 Input	
Details	Select Input specified by %1, and also select source specified by %2. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.6.4 CF_SYSTEM COMMAND

Command	"CF_SYSTEM_%1" [CR]	
%1	Input is Computer	"VGA1"..... Select VGA1 "VGA2"..... Select VGA2 "D-WXGA3"..... Select D-WXGA3 "D-WXGA4"..... Select D-WXGA4 "MODE16-MODE20"..... Select MODE16-Mode20 "EXST21"-"EXT60"..... Select "EXST21"-"EXT60"
	Input is Video	"AUTO"..... Select System" Auto" "NTSC"..... Select NTSC "NTSC443"..... Select NTSC4.43 "PAL"..... Select PAL "SECAM"..... Select SECAM "PAL-M"..... Select PAL-M "PAL-N"..... Select PAL-N "1080I60"..... Select 1080i 60Hz "1080I60"..... Select 1080i 50Hz "1035I"..... Select 1035i "720P"..... Select 720p "575P"..... Select 575p "480P"..... Select 480p "575I"..... Select 575i "480I"..... Select 480i "1080P30"..... Select 1080p30 "1080PSF30"..... Select 1080psf30 "MODE1"-"MODE15"..... Select Mode1-Mode15 "EXST21"-"EXT60"..... Select ExMode21-ExMode60
Details	Select a system for current input. (Only valid when it is in the usual Power On state) When Input and specified %1 are not matched, return "101"[CR] and does not execute the command.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.7 Screen Control COMMAND

8.7.1 CF_SCREEN COMMAND

Command	"CF_SCREEN_%1" [CR]	
%1	"NORMAL" Select Normal mode "FULL" Select Full mode "ANAMORPHIC"..... Select Anamorphic mode	
Details	Select screen size. (Only valid when it is in the usual Power On state) Even after turning off the projector, the setting stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.7.2 CF_VSCALE COMMAND

Command	"CF_VSCALE_%1" [CR]	
%1	"032" +32 "031" +31 : "002" +2 "001" +1 "000" ± 0 "-01" -1 "-2" -2 : "-31" -31 "-32" -32 "UP" Vscale setting value +1 "DN" Vscale setting value -1	
Details	Set V Scale. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.7.3 CF_VPOS COMMAND

Command	"CF_VPOS_%1" [CR]	
%1	"015" +15 "014" +14 : "002" +2 "001" +1 "000" ± 0 "01" -1 "02" -2 : "-14" -14 "-15" -15 "UP" Vposition setting value +1 "DN" Vposition setting value -1	
Details	Set V Position. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.7.4 CF_HSCALE COMMAND

Command	"CF_HSCALE_%1" [CR]	
%1	"032" +32 "031" +31 : "002" +2 "001" +1 "000" ± 0 "01" -1 "02" -2 : "-31" -31 "-32" -32 "UP" Hscale setting value +1 "DN" Hscalesetting value -1	
Details	Set H Scale. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.7.5 CF_HPOS COMMAND

Command	"CF_HPOS_%1" [CR]	
%1	"015" +15 "014" +14 : "002" +2 "001" +1 "000" ± 0 "01" -1 "02" -2 : "14" -14 "15" -15 "UP" Hposition setting value +1 "DN" Hpositionsetting value -1	
Details	Set H Position. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.8 Lamp COMMAND

8.8.1 CF_LAMPH COMMAND

Command	"CF_LAMPH_%1" [CR]	
%1	"RSTn" (n=1-4)Reset 1-4 lamp running time.	
Details	Reset 1-4 lamp running time. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.8.2 CF_LAMPMODE COMMAND

Command	"CF_LAMPMODE_%1" [CR]	
%1	"FULL" Set lamp full mode "HALF" Set lamp 3L mode	
Details	Select lamp mode. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays. "FULL" means that all lamps (4 lamps) are ON, and "3L" mode means that 2 lamps are ON and the two are automatically chosen and set. (The lamp of less total running time are chosen)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.8.3 CF_AUTOLAMPCTRL COMMAND

Command	"CF_A U T O L A M P C O N T R L _%1" [CR]	
%1	"ON" Auto Lamp Control ON "OFF" Auto Lamp Control OFF	
Details	Select Auto Lamp Control. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.9 Sound COMMAND

8.9.1 CF_VOLUME COMMAND

Command	"CF_VOLUME_%1" [CR]	
%1	"000-063"..... Directly set volume setting value "UP"..... Volume setting value +1 "DN"..... Volume setting value -1	
Details	Set Volume value. (Only valid when it is in the usual Power On state) Directly set volume value. (also can set by R/C) When setting volume value, Sound Mute ON is canceled and the setting Value is stored.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.9.2 CF_BASS COMMAND

Command	"CF_BASS_%1" [CR]	
%1	"000" - "063"..... Directly set BASS (Audio) value "UP" Current setting value +1 "DN" Current setting value-1	
Details	Set Bass (Audio) value. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.9.3 CF_TREBLE COMMAND

Command	"CF_TREBLE_%1"[CR]	
%1	"000" - "063"..... Directly set Treble (Audio) setting value "UP" Current setting value+1 "DN" Current setting value-1	
Details	Set Treble (Audio) setting value. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.9.4 CF_BLTINSP COMMAND

Command	"CF_BLTINSP_%1" [CR]	
%1	"ON"..... Set Built-In Speaker "OFF"..... Cancel Built-In Speaker	
Details	Set/Cancel Built-In Speaker. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.9.5 CF_MUTE COMMAND

Command	"CF_MUTE_%1" [CR]	
%1	"ON" Sound Mute ON "OFF" Sound Mute OFF	
Details	Control Sound Mute ON/OFF. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10 Setting COMMAND**8.10.1 CF_BBACK COMMAND**

Command	"CF_BBACK_1" [CR]	
%1	"ON" Select Blue Back "OFF" Cancel Blue Back	
Details	Set/Cancel (Only valid when it is in the usual Power On state). The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.2 CF_DISP COMMAND

Command	"CF_DISP_%1" [CR]	
%1	"ON" Select Display "OFF" Cancel Display	
Details	Set/Cancel Display (Only valid when it is in the usual Power On state). The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.3 CF_LOGO COMMAND

Command	"CF_LOGO_%1" [CR]	
%1	"ON" Select Logo "OFF" Cancel Logo	
Details	Set/Cancel Logo (Only valid when it is in the usual Power On state). The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.4 CF_CEIL COMMAND

Command	"CF_CEIL_%1" [CR]	
%1	"ON" Select Ceiling "OFF" Cancel Ceiling	
Details	Set/Cancel Ceiling (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.5 CF_REAR COMMAND

Command	"CF_REAR_%1" [CR]	
%1	"ON" Select Rear "OFF" Cancel Rear	
Details	Set/Cancel Rear (Only valid when it is in the usual Power On state). When Rear is ON, it will be a mirror-reversed image. The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.6 CF_RCODE COMMAND

Command	"CF_RCODE_%1" [CR]	
%1	"001"-"008"Specify Code1-Code8	
Details	Select Remote Control Code. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.7 CF_LANG COMMAND

Command	"CF_LANG_%1" [CR]	
%1	"ENG" Select ENGLISH "DEU" Select German "FRA" Select French "ITA" Select Italian "ESP" Select Spanish "POR" Select Portuguese "NED" Select Dutch "SVE" Select Swedish "CHI" Select Chinese "KOR" Select Korean "JPN" Select Japanese "RUS" Select Russian	
Details	Set OSD language. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.8 CF_ON-STA COMMAND

Command	"CF_ON-STA_%1" [CR]	
%1	"ON"..... Select Power On Start "OFF"..... Cancel Power On Start	
Details	Set/Cancel Power ON Start. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.9 CF_P-MANE COMMAND

Command	"CF_-MANE_%1" [CR]	
%1	"OFF".....Set Power management to OFF "READY".....Set Power management to Ready "SHUTDOWN"..... Set Power management to Shut Down mode	
Details	Set/Cancel Power management. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.10 CF_P-MANETIME COMMAND

Command	"CF_P-MANETIME_%1" [CR]	
%1	"01"-"30"..... Directly set setting time by the minute "UP"..... Plus one minute "DN"..... Minus one minute	
Details	Set Power management time. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.11 CF_FANSPEED COMMAND

Command	"CF_FANSPEED_%1" [CR]	
%1	"MAX"..... Select maximum fan speed "NOR"..... Select normal fan speed	
Details	Switch Fan Control Speed. (Only valid when it is in the usual Power On state) The value set by this Command is stored in EEPROM, and even after ALL OFF, the setting value stays.	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.12 CF_KEYDIS COMMAND

Command	"CF_KEYDIS_%1" [CR]	
%1	"NONE" RC&KEY are valid "RC"RC is invalid "KEY"KEY is invalid	
Details	Set bar the use of RC/KEY. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

8.10.13 CF_FDEFAULT COMMAND

Command	"CF_FDEFAULT_%1" [CR]	
%1	"RST"	
Details	Set Factory Default. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000" [CR]
	Unacceptable	"Error Code" [CR]

9. Status Read Command

9.1 Format

1. PC issues commands as below

"CR_**COMMAND****" [CR]**

Command: Character Line

2. When projector receives the appropriate command, it returns a character line as the required Data.

"000_"%1 [CR]

%1:Required Data (character line)

3. When receiving data cannot be decode, the projector returns "?" **[CR]**

9.2 Transfer Example

Get total dots of projector by expand Commands

PC → PJ : "CR_TODOTS" [CR]

PC ← PJ : "000_1344" [CR]

9.3 Operation Condition

Should be always operated

9.4 Image Status Read Command

9.4.1 CR_BRIGHT COMMAND

Command	"CR_BRIGHT" [CR]	
Details	Get Bright value	
Response	Acceptable	"000_%1" [CR]
	%1	"000_"- "063"
	Unacceptable	"Error Code" [CR]

9.4.2 CR_CONT COMMAND

Command	"CR_CONT" [CR]	
Details	Get Contrast value	
Response	Acceptable	"000_%1" [CR]
	%1	"000_"- "063"
	Unacceptable	"Error Code" [CR]

9.4.3 CR_COLOR COMMAND

Command	"CR_COLOR" [CR]	
Details	Get Color value	
Response	Acceptable	"000_%1" [CR]
	%1	"000_"- "063"
	Unacceptable	"Error Code" [CR]

9.4.4 CR_TINT COMMAND

Command	"CR_TINT" [CR]	
Details	Get Tint value	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"063"
	Unacceptable	"Error Code" [CR]

9.4.5 CR_SHARP COMMAND

Command	"CR_SHARP" [CR]	
Details	Get Sharpness value.	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"031"
	Unacceptable	"Error Code" [CR]

9.4.6 CR_GAMMA COMMAND

Command	"CR_GAMMA" [CR]	
Details	Get Gamma value	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"015"
	Unacceptable	"Error Code" [CR]

9.4.7 CR_WBAL-R COMMAND

Command	"CR_WBAL-R" [CR]	
Details	Get White Balance Red value of user Control	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"063"
	Unacceptable	"Error Code" [CR]

9.4.8 CR_WBAL-G COMMAND

Command	"CR_WBAL-G" [CR]	
Details	Get White Balance Green of user Control	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"063"
	Unacceptable	"Error Code" [CR]

9.4.9 CR_WBAL-B COMMAND

Command	"CR_WBAL-B" [CR]	
Details	Get White Balance Green of user Control	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"063"
	Unacceptable	"Error Code" [CR]

9.4.10 CR_COLTEMP COMMAND

Command	"CR_COLTEMP" [CR]	
Details	Get Color Temp setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"000"- "003" "BLANK"---- OSD menu is blank (Not XLOW/LOW/MID/HIGH)
	Unacceptable	"Error Code" [CR]

9.4.11 CR_DENHCR COMMAND

Command	"CR_DENHCR" [CR]	
Details	Get Detail Enhancer setting value for Faroudja input.	
Response	Acceptable	"000_%1" [CR]
	%1	"000" - "015"
	Unacceptable	"Error Code" [CR]

9.4.12 CR_NZRED COMMAND

Command	"CR_NZRED" [CR]	
Details	Get Color temp setting status	
Response	Acceptable	"000_% a " [CR]
	% a	"OFF"..... Cancel (OFF) Noise Reduction "L1"..... Noise Reduction L1 "L2"..... Noise Reduction L2 "L3"..... Noise Reduction L3
	Unacceptable	"Error Code" [CR]

9.4.13 CR_PROGV COMMAND

Command	"CR_PROGV" [CR]	
Details	Get Progressive setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Progressive Setting "OFF"..... Progressive cancellation
	Unacceptable	"Error Code" [CR]

9.4.14 CR_IMAGE COMMAND

Command	"CR_IMAGE" [CR]	
Details	Get image setting status	
Response	Acceptable	"000_% a " [CR]
	% a	"STANDPC"..... Standard (PC) "STANDAV"..... Standard (AV) "REAL" Real "CINEMA"..... Cinema "CUSTOM1"..... Image 1 "CUSTOM2"..... Image 2 "CUSTOM3"..... Image 3 "CUSTOM4"..... Image 4 "CUSTOM5"..... Image 5 "CUSTOM6"..... Image 6 "CUSTOM7"..... Image 7 "CUSTOM8"..... Image 8 "CUSTOM9"..... Image 9 "CUSTOM10"..... Image 10
	Unacceptable	"Error Code" [CR]

9.4.15 CR_IMGGMD COMMAND

Command	"CR_IMGGMD" [CR]	
Details	Get Standard ((PC) / Standard (AV) / Real / Cinema setting for image-gamma setting.	
Response	Acceptable	"000_%a" [CR]
	%a	"STDPC"..... Standard (PC) "STDAV"..... Standard (AV) "REL"..... Real "CNM"..... Cinema
	Unacceptable	"Error Code" [CR]

9.4.16 CR_APCTRL COMMAND

Command	"CR_APCTRL" [CR]	
Details	Get Auto Picture Control	
Response	Acceptable	"000_%1" [CR]
	%1	"L1"..... Auto Picture Control is working with Level 1 "L2"..... Auto Picture Control is working with Level 2 "OFF"..... Auto Picture Control is OFF
	Unacceptable	"Error Code" [CR]

9.5 Display Status Read COMMAND

9.5.1 CR_FSYNC COMMAND

Command	"CR_FSYNC" [CR]		
Details	Get Fine Sync value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"0000"- "0031"
		Input is Video	"0000"- "0031"
	Unacceptable	"Error Code" [CR]	

9.5.2 CR_TODOTS COMMAND

Command	"CR_TODOTS" [CR]		
Details	Get Total Dots value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"nnnn"- "9999" (nnnn = Display Dots + Horizontal Position)
		Input is Video	"nnnn"- "9999"
	Unacceptable	"Error Code" [CR]	

9.5.3 CR_CLAMP COMMAND

Command	"CR_CLAMP" [CR]		
Details	Get Clamp value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"0000"- "0127"
		Input is Video	"0000"- "1023"
	Unacceptable	"Error Code" [CR]	

9.5.4 CR_H-POS COMMAND

Command	"CR_H-POS" [CR]		
Details	Get Horizontal Position value		
Response	Acceptable	"000_%1"[CR]	
	%1	Input is Computer	"0000"- "nnnn" (nnnn = Total Dots - Display Dots)
		Input is Video	"0000"- "4095"
	Unacceptable	"Error Code" [CR]	

9.5.5 CR_V-POS COMMAND

Command	"CR_V-POS" [CR]		
Details	Get Vertical Position value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"0000"- "nnnn" (nnnn = Total Line - Display Line)
		Input is Video	"-m m m"- "nnnn"
	Unacceptable	"Error Code" [CR]	

9.5.6 CR_DLINE COMMAND

Command	"CR_DLINE" [CR]		
Details	Get Display Line value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"0100"- "nnnn" (nnnn = Total Dots – Horizontal Position value)
		Input is Video	"0100"- "nnnn" (nnnn = When receives unclear command)
	Unacceptable	"Error Code" [CR]	

9.5.7 CR_DDOTS COMMAND

Command	"CR_DDOTS" [CR]		
Details	Get Display Dots value		
Response	Acceptable	"000_%1" [CR]	
	%1	Input is Computer	"0100"- "nnnn" (nnnn = Total Dots – Horizontal Position value)
		Input is Video	"Error code" [CR] --- Invalid "?" [CR] ----- When receives unclear command
	Unacceptable	"Error Code" [CR]	

9.5.8 CR_ORGMODE COMMAND

Command	"CR_ORGMODE" [CR]		
Details	Get current selected signal for Mode that is set by Display Adjust. When MODE1-MODE20 or EXT21-EXT60 is not selected, get a current signal.		
Response	Acceptable	"000_%1" [CR]	
	%1	"XGA1" "108060".....Etc	
	Unacceptable	"Error Code" [CR]	

9.5.9 CR_MODESTORE COMMAND

Command	"CR_MODESTORE" [CR]	
Details	Get the status if MODE1-MODE20 is Free or Stored for Display Adjust. Each data Mode1-Mode20 is shown in 20 bytes. (F:Free, S:Stored)	
Response	Acceptable	"000_%1" [CR]
	Required Data	"FFFFFFFFFFFFFFFFFFFFFF"..... ALL Free "SFFFFFFFFFFFFFFFFFFFFF"..... Only Mode1is "Stored" and others are "Free" "FFFFFFFFFFFFFFFFFFFFFS".....Only Mode20 is "Stored" and others are "Free" "SSSSSSSSSSSSSSSSSSSS"..... ALL Stored
	Unacceptable	"Error Code" [CR]

9.5.10 CR_SETDISPADJ COMMAND

Command	"CR_SETDISPADJ" [CR]	
Details	Get signal for current system	
Response	Acceptable	"000_%1" [CR]
	%1	"PAL" "SECAM" "XGA1" "108060" "MODE16" "EXT24".....Etc.
	Unacceptable	"Error Code" [CR]

9.6 Status Read Command for Video**9.6.1 CR_SERSYS COMMAND**

Command	"CR_SERSYS" [CR]	
Details	Get selected signal. Only available when Input is video. (Unavailable when Input is computer)	
Response	Acceptable	"000_%1" [CR]
	Required Data	"1080I60"..... 1080i 60Hz "1080I60"..... 1080i 50Hz "1035I"..... 1035i "720P"..... 720p "575P"..... 575p "480P"..... 480p "575I"..... 575i (include composite signal such as PAL) "480I"..... 480i (include composite signal such as NTSC) "NO_SIGNALI"..... There is No Signal
	Unacceptable	"Error Code" [CR]

9.7 Input READ COMMAND FOR INPUT

9.7.1 CR_INPUT COMMAND

Command	"CR_INPUT" [CR]	
Details	Get selected INPUT No.	
Response	Acceptable	"000_%1" [CR]
	%1	"1"- "4"
	Unacceptable	"Error Code" [CR]

9.7.2 CR_SOURCE COMMAND

Command	"CR_SOURCE" [CR]	
Details	Get selected Source	
Response	Acceptable	"000_%1" [CR]
	%1	"DIGITAL"..... DVI inputs is selected "ANALOG".....ANALOG RGB is selected. "VIDEO"..... Video input is selected "S-VIDEO".....S-VIDEO is selected. "SCART".....SCART input is selected "HDCP"..... HDCP input is selected "YC"..... Y/C input is selected "YPBPR"..... Y/Pb/Pr input is selected "YPBCR"..... Y/Cb/Cr input is selected "SDI1"..... SDI1 input is selected "SDI2"..... SDI2 input is selected "BLANK"..... There is no source
	Unacceptable	"Error Code" [CR]

9.7.3 CR_SRCINP1 COMMAND

Command	"CR_SRCINP1" [CR]	
Details	Get INPUT 1 Source	
Response	Acceptable	"000_%1" [CR]
	Required Data	"DIGITAL"..... DVI digital input of computer is selected. "ANALOG"..... Analog input of computer is selected. "VIDEO"..... Video input of computer is selected. "S-VIDEO"..... S-Video input of computer is selected. "SCART"..... SCART input of computer is selected. "HDCP"..... HDCP input of computer is selected. "YC"..... Y/C input of computer is selected. "YPBPR"..... Y/Pb/Pr input of computer is selected. "YPBCR"..... Y/Cb/Cr input of computer is selected. "SDI1"..... SDI1 input of computer is selected. "SDI2"..... SDI2 input of computer is selected. "BLANK"..... There is no source "NOCARD"..... There is no card inserted
	Unacceptable	"Error Code" [CR]

9.7.4 CR_SRCINP2 COMMAND

Command	"CR_SRCINP2" [CR]	
Details	Get INPUT 2 Source	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_SRCINP1
	Unacceptable	"Error Code" [CR]

9.7.5 CR_SRCINP3 COMMAND

Command	"CR_SRCINP3" [CR]	
Details	Get INPUT 3 Source.	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_SRCINP1
	Unacceptable	"Error Code" [CR]

9.7.6 CR_SRCINP4 COMMAND

Command	"CR_SRCINP4" [CR]	
Details	Get INPUT 4 Source.	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_SRCINP1
	Unacceptable	"Error Code" [CR]

9.7.7 CR_SYSTEM COMMAND

Command	"CR_SYSTEM" [CR]	
Details	Get selected System	
Response	Acceptable	"000_%1" [CR]
	%1	Input is PC "VGA1"..... VGA1 is selected "VGA2"..... VGA2 is selected : : : "D-WXGA3"..... D-WXGA3 is selected "D-WXGA4"..... D-WXGA4 is selected "MODE16"- "MODE20" MODE16-20 is selected "EXST21"- "EXT60"..... ExMode21-60 is selected
		Input is Video "AUTO" Auto is selected "NTSC" NTSC is selected "NTSC443"..... NTSC4.43 is selected "PAL" PAL is selected "SECAM" SECAM is selected "PAL-M" PAL-M is selected "PAL-N" PAL-N is selected "1080I60"..... 1080i60Hz is selected "1080I60"..... 1080i50Hz is selected "1035I" 1035i is selected "720P" 720p is selected "575P" 575p is selected "480P" 480p is selected "575I" 575i is selected "480I" 480i is selected "1080P30".. 1080p30 is selected "1080PSF30"..... 1080psf30 is selected "MODE1"- "MODE15" MODE1-15 is selected "EXST21"- "EXT60"..... Ex Mode21-60 is selected
	Unacceptable	"Error Code" [CR]

9.7.8 CR_SYSLIST COMMAND

Command	"CR_SYSLIT" [CR]	
Details	Get available system list.	
Response	Acceptable	"000_%1_%2_....._%x" [CR]
	%1	(Ex.) "AUTO" Auto is in the list. "NTSC" NTSC is in the list. : : : "108060..... 1080i60Hz is in the list. : : : "575I" 575i is in the list. "480I" 480i is in the list. * It does not return "CUSTOM"
	Unacceptable	"Error Code" [CR]

9.7.9 CR_MODELIST COMMAND

Command	"CR_MODELIST" [CR]	
Details	Get available mode list.	
Response	Acceptable	"000_%1_%2_....._%x" [CR]
	%1	"MODE1" "MODE2" "MODE3" : : : "MODE18" "MODE19" "MODE20"
	Unacceptable	"Error Code" [CR]

9.7.10 CR_HMSLOT COMMAND

Command	"CR_HMSLOT" [CR]	
Details	Get number of slot.	
Response	Acceptable	"000_%1" [CR]
	%1	"004"
	Unacceptable	"Error Code" [CR]

9.7.11 CR_NMSLOT1 COMMAND

Command	"CR_NMSLOT1" [CR]	
Details	Get a card name inserted to Slot 1	
Response	Acceptable	"000_%1" [CR]
	%1	"VIDEO" Video Card "Progressive" Faroudja Card "Network" Network Card "5BNC" Component Card "DVI" DVI Card "HDCP-DVI" HDCP-DVI Card "DUAL-SDI" DUAL-SDI Card "NOTERMINAL" When there is no card inserted
	Unacceptable	"Error Code" [CR]

9.7.12 CR_NMSLOT2 COMMAND

Command	"CR_NMSLOT2" [CR]	
Details	Get a card name inserted to Slot 2	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_NMSLOT1
	Unacceptable	"Error Code" [CR]

9.7.13 CR_NMSLOT3 COMMAND

Command	"CR_NMSLOT3" [CR]	
Details	Get a card name inserted to Slot 3	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_NMSLOT1
	Unacceptable	"Error Code" [CR]

9.7.14 CR_NMSLOT4 COMMAND

Command	"CR_NMSLOT4" [CR]	
Details	Get a card name inserted to Slot 4	
Response	Acceptable	"000_%1" [CR]
	%1	The same data as CF_NMSLOT1
	Unacceptable	"Error Code" [CR]

9.7.15 CR_IDSLOT1 COMMAND

Command	"CR_IDSLOT1" [CR]	
Details	Get ID information of SLOT1. This command is to know what kind of card is inserted and the valid input source.	
Response	Acceptable	"000_%1" [CR]
	%1	<p>"00" Video Card Valid Input Source: VIDEO, YC, S-VIDEO</p> <p>"02" Faroudja Card Valid Input Source: VIDEO , YC , S-VIDEO , YCBCR</p> <p>"03" Network Card Valid Input Source: ON (BLANK)</p> <p>"04" Component Card Valid Input Source:ANALOG , YPBPR</p> <p>"05" DVI Card Valid Input Source: DIGITAL , ANALOG</p> <p>"08" DUAL-SDI Card Valid Input Source:SDI1 , SDI2</p> <p>"09" HDCP-DVI Card Valid Input Source: DIGITAL ,ANALOG ,SCART ,HDCP</p> <p>"99" No Card inserted</p>
	Unacceptable	"Error Code" [CR]

9.7.16 CR_IDSLOT2 COMMAND

Command	"CR_IDSLOT2" [CR]	
Details	Get ID information of SLOT2. This command is to know what kind of card is inserted and the valid input source.	
Response	Acceptable	"000_%1" [CR]
	%1	THE SAME AS CR_IDSLOT1
	Unacceptable	"Error Code" [CR]

9.7.17 CR_IDSLOT3 COMMAND

Command	"CR_IDSLOT3" [CR]	
Details	Get ID information of SLOT3. This command is to know what kind of card is inserted and the valid input source.	
Response	Acceptable	"000_%1" [CR]
	%1	THE SAME AS CR_IDSLOT1
	Unacceptable	"Error Code" [CR]

9.7.18 CR_IDSLOT4 COMMAND

Command	"CR_IDSLOT4" [CR]	
Details	Get ID information of SLOT4. This command is to know what kind of card is inserted and the valid input source.	
Response	Acceptable	"000_%1" [CR]
	%1	THE SAME AS CR_IDSLOT1
	Unacceptable	"Error Code" [CR]

9.8 Screen Status Read Command**9.8.1 CR_SCREEN COMMAND**

Command	"CR_SCREEN" [CR]	
Details	Get selected screen image size	
Response	Acceptable	"000_%1" [CR]
	%1	"NORMAL"..... Normal mode "FULL"..... Full mode "ANAMORPHIC"..... Anamorphic mode
	Unacceptable	"Error Code" [CR]

9.8.2 CR_VSCALE COMMAND

COMMAND	"CR_VSCALE" [CR]	
Details	Get V Scale setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"-32" - "032"
	Unacceptable	"Error Code" [CR]

9.8.3 CR_VPOS COMMAND

Command	"CR_VPOS" [CR]	
Details	Get V Position setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"-15" - "015"
	Unacceptable	"Error Code" [CR]

9.8.4 CR_HSCALE COMMAND

Command	"CR_HSCALE" [CR]	
Details	Get H Scale setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"-32" - "032"
	Unacceptable	"Error Code" [CR]

9.8.5 CR_HPOS COMMAND

Command	"CR_HPOS" [CR]	
Details	Get H Position setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"-15" - "015"
	Unacceptable	"Error Code" [CR]

9.9 Lamp Status Read Command**9.9.1 CR_LAMPREPL COMMAND**

Command	"CR_LAMPREPL" [CR]	
Details	Get lamp replacement time information	
Response	Acceptable	"000_%1" [CR]
	%1	<p>"n****"</p> <p>n shows how many lamps are used (1 lamp, 2 lamps or 4 lamps)</p> <p>* "Y" means over lamp replacement time, and "N" means inside lamp replacement time.</p> <p>Ex:</p> <p>"1 Y" Single (ONE) lamp system and need a new lamp.</p> <p>"2 Y N" 2-lamp system, and need a new lamp for No.1, and do not need a new lamp for No.2.</p> <p>"4 N Y Y N" 4-lamp system, and do not need new lamps for No.1 & No.4. Need new lamps for No.2 and No.3.</p>
	Unacceptable	"Error Code" [CR]

9.9.2 CR_LAMPMODE COMMAND

Command	"CR_LAMPMODE" [CR]	
Details	Get lamp mode setting status	
Response	Acceptable	"000_%1" [CR]
	%1	<p>"FULL"= Select full lamp mode</p> <p>"HALF"= Select 3L lamp mode</p>
	Unacceptable	"Error Code" [CR]

9.9.3 CR_AUTOLAMPCTRL COMMAND

Command	"CR_AUTOLAMPCTRL" [CR]	
Details	Get lamp control mode. (Only valid when it is in the usual Power On state)	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Auto Lamp Control ON "OFF"..... Auto Lamp Control OFF
	Unacceptable	"Error Code" [CR]

9.9.4 CR_LAMPSTS COMMAND

Command	"CR_LAMPSTS" [CR]	
Details	Get lamp on status.	
Response	Acceptable	"000_%1" [CR]
	%1	<p>"n****"....Number range for * is 1 to 4. First character shows the lamp system (1-lamp system, 2-lamp system, or 4-lamp system) Second character shows the lamp status as below. "I"Lamp is ON. "O"Lamp is OFF. "X"Faulty lamp. (Ex.) "1I"1-lamp system and the lamp is ON. "2IO"1-lamp system, and the No.1 lamp is ON and No.2 lamp is OFF. "4IOXI"4-lamp system and No1&No.4 lamps are ON. No.2 lamp is OFF, and No.3 lamp is faulty.</p>
	Unacceptable	"Error Code" [CR]

9.9.5 CR_INFLAMP COMMAND

Command	"CR_INFLAMP" [CR]	
Details	Get lamp mode switching status.	
Response	Acceptable	"000_%1" [CR]
	%1	"NML"= Normal "CNG"= Lamp on switching status
	Unacceptable	"Error Code" [CR]

9.9.6 CR_PROJH COMMAND

Command	"CR_PROJH" [CR]	
Details	Get projector total running time. (h)	
Response	Acceptable	"000_%1" [CR]
	%1	"0000000"- "0065535"
	Unacceptable	"Error Code" [CR]

9.9.7 CR_HMLAMP COMMAND

Command	"CR_HMLAMP" [CR]	
Details	Get total lamp number.	
Response	Acceptable	"000_%1" [CR]
	%1	"001"-"004"
	Unacceptable	"Error Code" [CR]

9.10 Sound Status Read COMMAND**9.10.1 CR_VOLUME COMMAND**

Command	"CR_VOLUME" [CR]	
Details	Get user control volume value.	
Response	Acceptable	"000_%1" [CR]
	%1	"000"-"063"
	Unacceptable	"Error Code" [CR]

9.10.2 CR_MUTE COMMAND

Command	"CR_MUTE" [CR]	
Details	Get sound mute setting value	
Response	Acceptable	"000_%1" [CR]
	%1	"ON" Sound Mute is ON "OFF" Sound Mute is OFF.
	Unacceptable	"Error Code" [CR]

9.10.3 CR_BASS COMMAND

Command	"CR_BASS" [CR]	
Details	Get BASS(Audio) value	
Response	Acceptable	"000_%1" [CR]
	%1	"000" - "063"
	Unacceptable	"Error Code" [CR]

9.10.4 CR_TREBLE COMMAND

Command	"CR_TREBLE" [CR]	
Details	Get TREBLE (Audio) value.	
Response	Acceptable	"000_%1" [CR]
	%1	"000" - "063"
	Unacceptable	"Error Code" [CR]

9.10.5 CR_BLTINSP COMMAND

Command	"CR_BLTINSP" [CR]	
Details	Get Built-in Speaker setting value	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Select Built-In speaker "OFF"..... Built-In speaker OFF
	Unacceptable	"Error Code" [CR]

9.11 Setting Status Read COMMAND**9.11.1 CR_BBACK COMMAND**

Command	"CR_BBACK" [CR]	
Details	Get Blue Back setting status.	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Blue Back ON "OFF"..... Blue Back OFF
	Unacceptable	"Error Code" [CR]

9.11.2 CR_DISP COMMAND

Command	"CR_DISP" [CR]	
Details	Get Display setting value.	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Display ON "OFF"..... Display OFF
	Unacceptable	"Error Code" [CR]

9.11.3 CR_LOGO COMMAND

Command	"CR_LOGO" [CR]	
Details	Get Logo setting status.	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Logo ON "OFF"..... Logo OFF
	Unacceptable	"Error Code" [CR]

9.11.4 CR_RCODE COMMAND

Command	"CR_RCODE" [CR]	
Details	Get Selected remote control mode status.	
Response	Acceptable	"000_%1" [CR]
	%1	"001"..... Code 1 "002"..... Code 2 - "008"..... Code 8
	Unacceptable	"Error Code" [CR]

9.11.5 CR_LANG COMMAND

Command	"CR_LANG" [CR]	
Details	Get selected language	
Response	Acceptable	"000_%1" [CR]
	%1	"ENG"..... English is selected "DEU"..... German "FRA"..... French "ITA"..... Italian "ESP"..... Spanish "POR"..... Portuguese "NED"..... Dutch "SVE"..... Swedish "CHI"..... Chinese "KOR"..... Korean "JPN"..... Japanese "RUS"..... Russian
	Unacceptable	"Error Code" [CR]

9.11.6 CR_ON-STA COMMAND

Command	"CR_ON-STA" [CR]	
Details	Get Power ON Start setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"= Power ON Start is set "OFF"= Power ON Start is canceled
	Unacceptable	"Error Code" [CR]

9.11.7 CR_P-MANE COMMAND

Command	"CR_P-MANE" [CR]	
Details	Get Power management setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"OFF"..... Power management is OFF "READY"..... Power management is Ready "SHUTDOWN"..... Shut Down mode is set
	Unacceptable	"Error Code" [CR]

9.11.8 CR_P-MANETIME COMMAND

Command	"CR_P-MAETIME" [CR]	
Details	Get the time to start Power management	
Response	Acceptable	"000_%1" [CR]
	%1	"001"-"030"..... 1 minute to 30 minutes.
	Unacceptable	"Error Code" [CR]

9.11.9 CR_FANSPEED COMMAND

Command	"CR_FANSPEED" [CR]	
Details	Get selected Fan Control Speed	
Response	Acceptable	"000_%1" [CR]
	%1	"MAX"..... Fan Control Speed Max. "NOR"..... Fan Control Speed Normal
	Unacceptable	"Error Code" [CR]

9.11.10 CR_KEYDIS COMMAND

Command	"CR_KEYDIS" [CR]	
Details	Get RC/KEY status (valid or invalid)	
Response	Acceptable	"000_%1" [CR]
	%1	"NONE" = RC & KEY are veiled "RC" = RC is invalid "KEY" = KEY is invalid
	Unacceptable	"Error Code" [CR]

9.12 Other Status Read COMMAND**9.12.1 CR_PRESSURE COMMAND**

Command	"CR_PRESSURE" [CR]	
Details	Get Air Pressure value. The value is DC voltage converted by 10 bit AD converter that is output from air pressure sensor Here is the formula as below. Air Pressure (hPa)= (5*Vn / 1024 – 0.204) / 0.00459 + 150 obtain accuracy of ± 2%	
Response	Acceptable	"000_%1" [CR]
	%1	"0000"-"1023"
	Unacceptable	"Error Code" [CR]

9.12.2 CR_SIGNAL COMMAND

Command	"CR_SIGNAL" [CR]	
Details	Get signal status if there is signal or no signal.	
Response	Acceptable	"000_%1" [CR]
	%1	"ON" = There is signal "OFF" = No signal
	Unacceptable	"Error Code" [CR]

9.12.3 CR_VMUTE COMMAND

Command	"CR_VMUTE" [CR]	
Details	Get No Show setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... No Show is set "OFF"..... No Show is canceled
	Unacceptable	"Error Code" [CR]

9.12.4 CR_FREEZE COMMAND

Command	"CR_FREEZE" [CR]	
Details	Get Freeze setting status	
Response	Acceptable	"000_%1" [CR]
	%1	"ON"..... Freeze is set "OFF"..... Freeze is canceled
	Unacceptable	"Error Code" [CR]

9.12.5 CR_INFPFAIL COMMAND

Command	“CR_INFPFAIL” [CR]	
Details	Get the failure information.	
Response	Acceptable	“000_%1” [CR]
	%1	“*****” See the below table for details.
	Unacceptable	“Error Code” [CR]

Error information code in the power Error.

Main Board	Detecting Points	Power Error Code Hexadecimal	Further information of the Error Code (Binary code)							
			Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
1) 5V	D6634	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
2) 9V	D6641	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
3) S9V	D6632	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
4) 5V	R8036	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
5) 10V	D6633	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
6) Thermal Sensor	R880	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
7) 13.5V	D2508	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
8) 15.5V	D2502	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
9) 3.3V	D6631	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
10) PFC1	R5846	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
11) PFC2	R5847	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
12) PFC1 - 2FAN	R5870	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
13) PFC3	KiQ12pm	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
14) PFC4	KiQ12pm	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
15) PFC3 - 4FAN	R5874	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
16) Motor&Auds	R5854	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1

Sub Power Board	Detecting Points	Power Error Code Hexadecimal	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
			Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
1) 15V	D7	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
2) Fan 24VF1	D15	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
3) Fan 12VF1	D2	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
4) Fan P.F.(K66G)	Q20	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
5) Fan 12VF2	D4	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
6) Fan P.F.(K66E)	Q21	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
7) Fan 12VF3	D8	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
8) Fan P.F.(K66F)	Q22	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1

Others	Detecting Points	Power Error Code Hexadecimal	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
			Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
1) AC SENSOR	K8H2pm	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
2) SLOT1 P-fail		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
3) SLOT2 P-fail		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
4) SLOT3 P-fail		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
5) SLOT4 P-fail		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
6) I/O DEVICE ERROR		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
7)		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
8)		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1

Others	Detecting Points	Power Error Code Hexadecimal	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
			Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit	Upper 4 bit	Lower 4bit
1) FF-FAN1_4	IC9812(4pm)	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
2) FF-FAN2_3	IC9812(3pm)	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
3) FF-VCC-FAN1_4	IC9812(6pm)	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
4) FF-VCC-FAN2_3	IC9812(7pm)	FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
5) FF-FANOPEN		FF FF FF FF FF	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0	1 1 1 1	1 1 1 1	1 1 1 1
6)										
7)										
8)										

How to read the Error Code

This table expresses the relation of the power supply lines and those detecting points, and the power error information code that the network board sends to user when the projector has a power abnormality. This error code is indicated by ar10-digit hexadecimal number.

For example, if the error code is “FFFDFFFFFF”, it indicates that the “9V” line on the main board has a failure according to the above table.

In the further information of the power error code table, when the abnormality occurs at the detecting points, the flag “0” appears, the flag “1” represents no abnormality.

When two or more combined power failures occurred at the same time, also the combined power error code is output.

For example, if the error code is “FFF9FFFFFF”; The 4th number from the left is “9”. The hexadecimal code “9” means “1001” by binary expression from the conversion table on the right. This is indicated that the errors occurred at the 2nd and 3rd. Checking the case which both of the 2nd and the 3rd are set “0” in the lower-bit of the 4th from the left in the above table, it can be found out that both of the “9V” line and “S9V” line have a power error. So please check these power supply lines on the main board.

Combination of the Error									
1 1 1 1	1	1	1	1	F				
1 1 1 1	0	1	1	1	E				
1 1 1 0	1	1	1	1	D				
1 1 0 1	1	1	1	1	C				
1 0 1 1	1	1	1	1	B				
1 0 0 1	1	1	1	1	A				
1 0 0 0	1	1	1	1	9				
0 1 1 1	1	1	1	0	8				
0 1 1 0	1	1	1	0	7				
0 1 0 1	1	1	1	0	6				
0 1 0 0	1	1	1	0	5				
0 0 1 1	1	1	0	1	4				
0 0 1 0	1	1	0	1	3				
0 0 0 1	1	1	0	1	2				
0 0 0 0	1	1	0	1	1				
0 0 0 0	0	1	0	1	0				

9.12.6 CR_TEMPWARN COMMAND

Command	"CR_TEMPWARN" [CR]	
Details	Get if the sensors are exceeding or approaching critical temperature. When some sensors are installed inside the projector, get each sensor's temperature.	
Response	Acceptable	"000_%1"[CR]
	Required Data	<p>"* _"</p> <p>There is sensor 1 data, one space, sensor 2 data, and one space....</p> <p>"W"--- Exceeding critical temperature (Warning)</p> <p>"S"--- Sensor temperature is safe.</p> <p>"N"--- Not relate to the temperature</p> <p>Ex. When "S_W"[CR] means that sensor 1 is safety temperature, and sensor 2 is exceeding critical temperature. Notice) Depends on projectors, when there is the extreme temperature swings between sensor 1 and sensor 2, it shows "W". In this case, the second data shows if the extreme temperature is abnormal</p>
	Unacceptable	"Error Code" [CR]

9.12.7 CR_TEMPFAIL COMMAND

Command	"CR_TEMPFAIL" [CR]	
Details	Get the temperature inside a projector. When some temperature sensors are installed in the projector, it is possible to know the temperature all at once.	
Response	Acceptable	"000_%1" [CR]
	Required Data	<p>(Ex.) "_31.5 F" [CR]</p> <p>_means a space. When the temperature sinks to -, the first character "-"like "-05.5F"[CR].</p> <p>When some temperature sensors are installed in the projector, it returns response continuously.</p> <p>(Ex.) " 31 . 5F 35 . 2S"[CR]</p> <p>The first data indicates sensor 1 data and one space. After that, there is sensor 2 data.</p> <p>Last character indicates the sensor's status.</p> <p>Exceeding critical temperature = "F"</p> <p>Sensor temperature is safe = "S"</p> <p>Not relate to the temperature = "N"</p> <p>"_31.5F" (sensor1) indicates 31.5 degrees and the projector is exceeding critical temperature. "35.2S" (sensor 2) indicates 32.5 degrees and the temperature is safe.</p> <p>When the temperature is safe, the data will be " 00.0S".</p> <p>Every time the projector is reset, " 00.0S" is set.</p> <p>In short, previous data is deleted.</p>
	Unacceptable	"Error Code" [CR]

10. COMMAND with Address Specification

10.1 Overview

10.1.1 Commands with address are to control multiple projectors by one computer.

10.1.2 The command with address is defined one command/one line that starts "A" and ends carriage return (0x0D).

10.1.3 When a projector receives carriage return (0x0D), it starts decoding.

10.1.4 This Command is represented Basic Command or Expand Command with address such as "A001".

(Ex) Functional Execution Command

"A001C05" [CR]

(Ex) Status Read Command

"A001CR0" [CR]

10.1.5 There is a function that can set up the projector address.

Default setting is "No. 001"

Possible range is "001" to "999"

10.1.6 It clears the received buffer in this case as below.

- When receiving LF (0x0A) or EOF (0x1A)
- When it takes more than one second to receive one command.

(Since the projector has received the first data "C", when it takes more than 1 second until the projector receives a carriage return (0x0D), it clears information of buffer)

10.1.7 Wait at least 60

10.2 Functional Execution Command with address

10.2.1 Format

1. Issue command from PC as below

"A"**Address**"C"**COMMAND** [CR]

or

"A"**Address**"CF_"**COMMAND**"-"**Parameter** [CR]

Address: 3-digit number ("001"-"999")

When using "FFF" as the address, all projectors are available

Command: Character line (See Basic Command or Expand Command)

2. The only appropriate projectors decode received commands, and when it is ready to receive next commands, it returns the response.

[ACK] [CR] : When receiving functional execution command (0x06, 0x0D)

" ? " [CR] : When receiving unclear data

However, when address is "FFF", it executes the function but does not return the response.

10.2.2 When Needs Pipelining

When needs command pipelining, the operation is the same as the remote control.

1. PC issues commands every 200ms
2. When receiving appropriate commands, projector executes the commands in 120ms.
3. When receiving the same command in 120ms, the projector executes them next in 120ms
4. When there is no command after 120 ms, the execution stops.
5. When receiving other commands in 120ms, the execution stops.

10.3 Status Read Command with Address

10.3.1 Format

6. PC issues commands as below

"A"**Address**"CR"**COMMAND** [CR]

or

"A"**Address**"CR_"**COMMAND** [CR]

Address: 3 digits number ("001"-"999")

Command: Character line (See Basic Command or Expand Command)

7. When only appropriate projector decodes received command, and returns the character line as the required data.

Required Data [CR]

Required Data: Character Line (See Basic Status Read Command)

3. When received an undecodable data

Returns "?" [CR] When receiving unclear data, it returns "?" [CR]