

CU003 Installation and Technical Manual

[Note] The Photos of Light Engine and Control Unit in this manual are for reference only. The items may be different in actual package.

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Date:2017/07/26

1. Safety Instructions

Always follow these safety instructions when setting up and using the Control Unit:

1. Do not place Control Unit in tilted position.
2. Do not place the Control Unit on an unstable trolley, stand or table.
3. Do not use the Control Unit near water or source of heat.
4. Use attachments only as recommended.
5. Do not block slots and openings in the Control Unit case as poor ventilation may lead to overheated Control Unit.
6. Never push objects of any kind through cabinet slots. Never allow liquid of any kind to spill into the Control Unit.
7. Except as specifically instructed in this User Manual, do not attempt to operate this product by yourself. Opening or removing covers may expose you to dangerous voltages and other hazards. Refer all servicing to licensed service personnel.
8. In case of the following situations, please unplug the Control Unit and refer servicing to licensed service personnel:
 - If liquid is spilled into it or the Control Unit has been exposed to rain or water.
9. Potential difference should be checked with a meter before installation to avoid equipment damage and personal injury due to electric shock. **Note: Please refer this task to a qualified technician to avoid potential risks.**
 - Before you connect and control the video signal, use the meter to verify the connectors or device to be connected for any potential difference.
 - Measure the RS-232, DVI, VGA or video signal connectors of the device to be connected using the meter. (For measurement method, please refer to FAQ 7.5).
 - If the measured potential difference is more than 10 V, please contact qualified service personnel for troubleshooting.
 - **Using the device at a potential difference of larger than 10 V may cause risk of device damage and electric shock.**

<Note>: Using an incorrect battery type in the remote control may result in breakdown. Follow your country's instructions on how to dispose of used batteries.

■ Precautions

Warning: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

		Note Risk of Electric Shock DO NOT OPEN			
Caution: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to licensed service personnel.					
		This symbol indicates that this equipment may contain dangerous voltage which could cause electric shock.			
				This symbol indicates that there are important operating and maintenance instructions in this User Manual with this unit.	

■ EN55022 (CE Radiation) Warning

This product is intended for use in a commercial, industrial, or educational environment. It is not intended for residential use.

This is a Class A product. In a residential environment it may cause radio interference, in which case the user may be required to take adequate measures. The typical use is in a conference room, meeting room or auditorium.

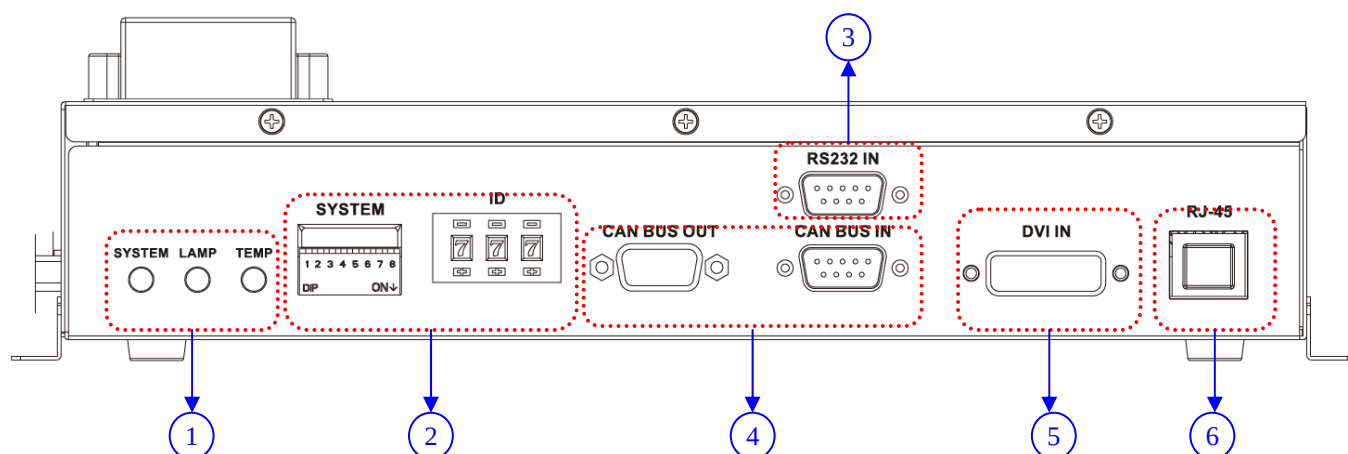
2. Package Contents

The following accessories are included:

- 2.1. RS485 cable
- 2.2. Dual connection DVI cable
- 2.3. IR extension cord
- 2.4. Fan connector
- 2.5. Holding plate + M4 hex socket cap screw

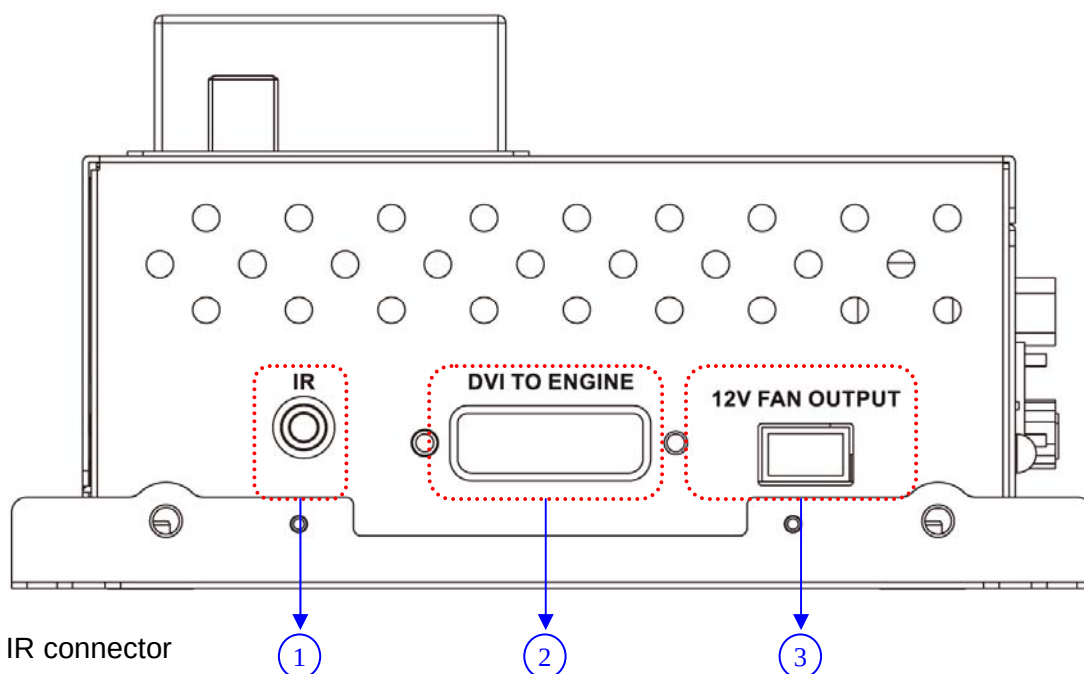
3. Port Description

3.1. Front View



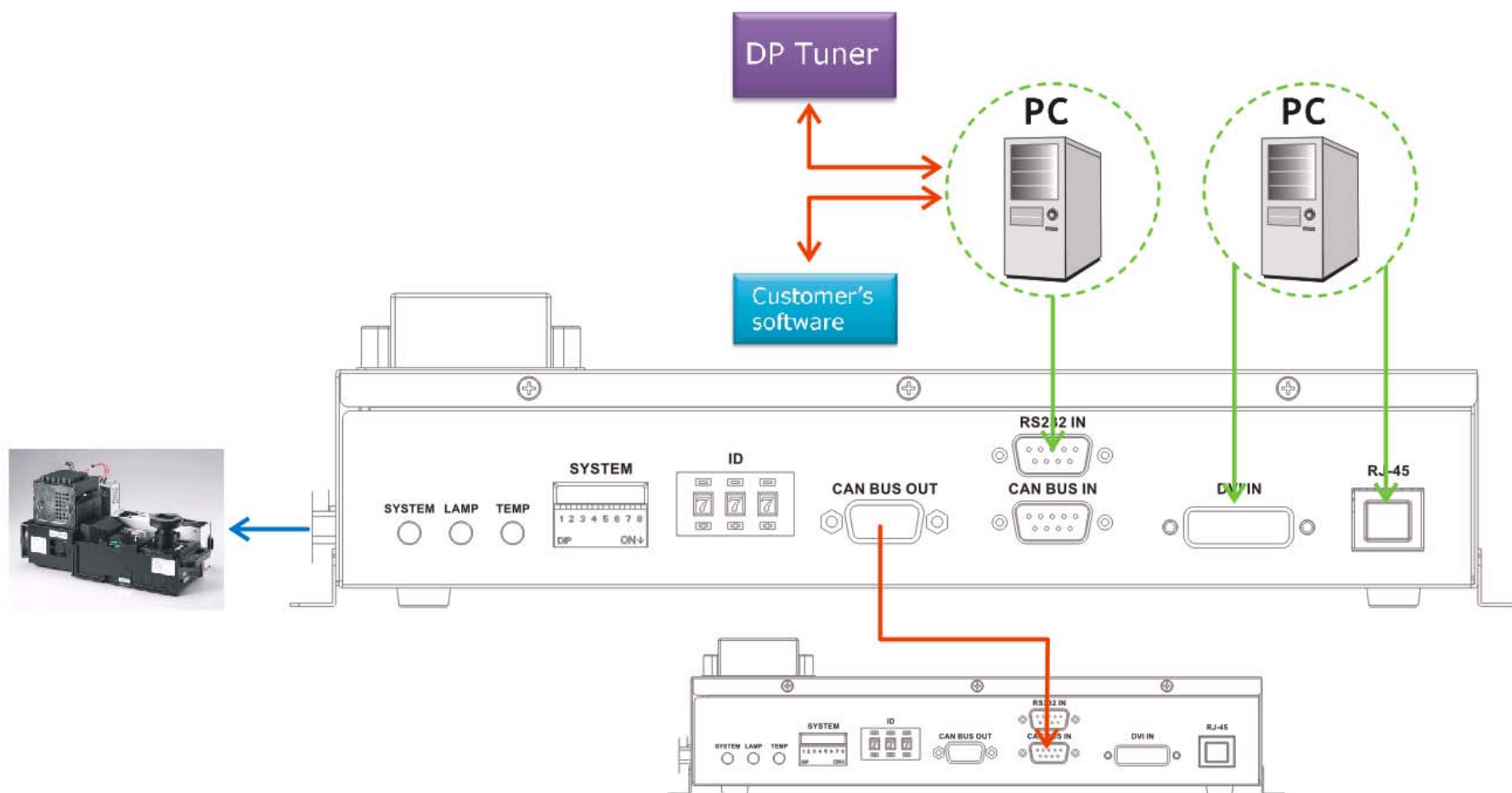
1. LED indicator
2. ID/SYSTEM DIP switch setting
3. RS232 IN port
4. D-sub 9 Pins I/O port
5. DVI IN port
6. RS-45 I/O port

3.2. Side View



1. IR connector
2. DVI to Engine
3. 12 V fan output socket

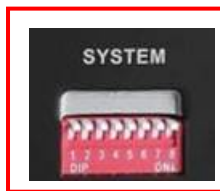
4. System diagram



5. DIP SWITCH setting

5.1. SYSTEM DIP SWITCH setting

Set up the first and last RS485.

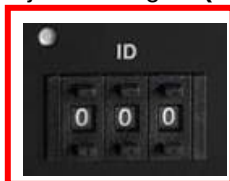


<Remark> Right-hand System: Provide system setup and debug mode. The white colored position is for jumping setup.

RS485: The first DLP Projection Engine setup This is the Host unit	RS485: The last DLP Projection Engine setup This is the Last unit

5.2. ID DIP SWITCH setting

Define the ID number of each DLP Projection Engine (ID address):



5.2.1. Set up ID of DLP Projection Engine by its sequence

<Note> Set limits

※The Host ID number must be 000.

※The ID number must be in consecutive, rather than broken, sequence (i.e. 000 → 001 → 002 → ...).

5.2.1.1. Recommended ID number setup sequence (blue arrow indicates series connection of RS-485).

Take 3 x 8 DLP Projection Engine for example.

1 st machine ID NUMBER 000	2 nd machine ID NUMBER 001	3 rd machine ID NUMBER 002	4 th machine ID NUMBER 003	5 th machine ID NUMBER 004	6 th machine ID NUMBER 005	7 th machine ID NUMBER 006	8 th machine ID NUMBER 007
9 th machine ID NUMBER 015	10 th machine ID NUMBER 014	11 ^h machine ID NUMBER 013	12 th machine ID NUMBER 012	13 th machine ID NUMBER 011	14 th machine ID NUMBER 010	15 th machine ID NUMBER 009	16 th machine ID NUMBER 008
17 th machine ID NUMBER 016	18 th machine ID NUMBER 017	19 th machine ID NUMBER 018	20 th machine ID NUMBER 019	21 th machine ID NUMBER 020	22 th machine ID NUMBER 021	23 th machine ID NUMBER 022	24 th machine ID NUMBER 023

6. Starting Installation

6.1. Install the Fan connector



6.2. Install the CU holding plate

6.2.1. Install with a holding plate and M4 hex socket cap screws.



6.3. Attach the CU to the DLP Projection Engine.

6.4. Connect LE and CU

6.4.1. Use the supplied DVI cable.

Optical Engine



Dual connection DVI

Control Unit

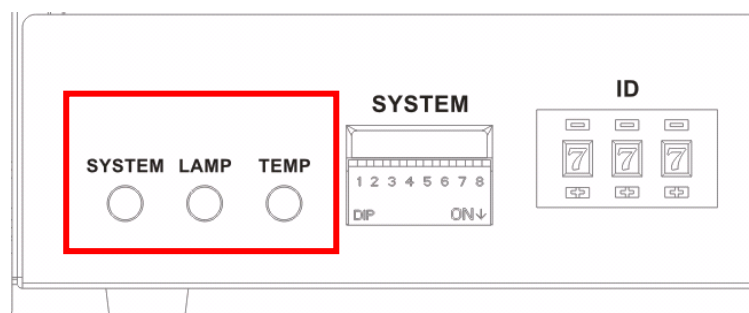


6.5. Wait until all the CUs are installed.

7. Preliminary Test

- 7.1. Turn on your CU
- 7.2. Turn on your CU with Remote
- 7.3. Confirm correct display
- 7.4. Confirm all the LED indicators light green

8. LED Indicator Overview

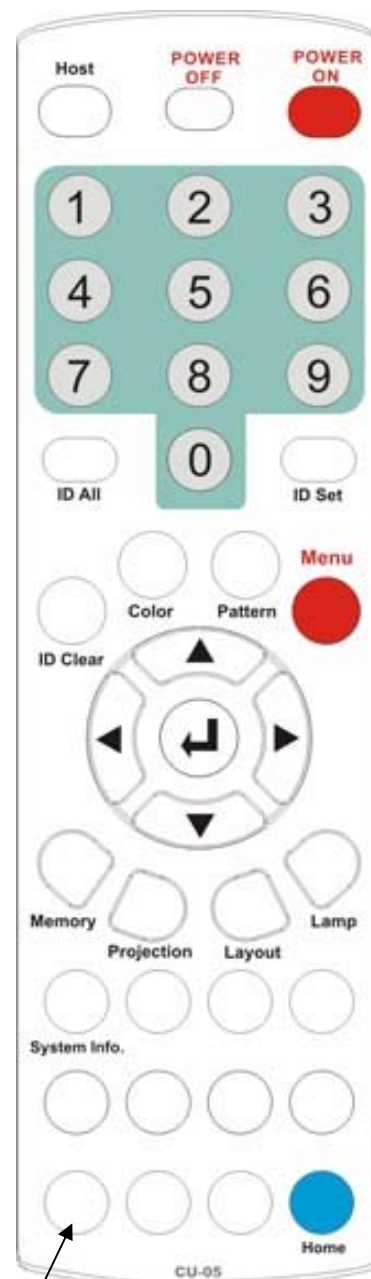


Indicator	Status	Description
SYSTEM	Green	In normal operation
	Yellow	In standby mode (system not started when the power is supplied)
	Flash yellow	Wait for lamp to cool when the system is powered off
LAMP	Black	In standby mode
	Green	Lamp in normal status
	Red	Abnormal lighting
TEMP	Black	In standby mode
	Green	Thermal in normal status
	Red	Abnormal thermal

9. Overview of buttons on Remote

<Remark> Arranged in sequence from right to left and top to bottom.

Button	Function
Power On	Power On
Power Off	Power Off
Host	Turn On Host of the display wall
# 0~#9	Number 0 ~ 9
ID Set	Set up projection unit
ID All	Enable all the display walls to be controlled by Remote
Menu	Display the OSD menu
Pattern	Built in test screen
Color	Turn On/Off Color Adj.
Top, bottom, left, and right arrow keys	Arrow key for selecting items in OSD menu
↵	Enter key
Lamp	Display the control Lamp menu
Layout	Set the screen to n x m
Projection	Projection method adjustment (Gamma, Flip...)
Memory	Display Memory menu
Home	Press this key to point the OSD cursor to Color Temp. This is valid only in status of ID Activities. Available statuses are: 1. No matter which menu you are in, pressing this key will bring the cursor back to [Color Adj.] screen as long as the OSD menu has started. 2. In case the OSD menu is not started, pressing this key will display the OSD menu and point the cursor at [Color Adj.] screen.
System Inf	System status information
Dropper	ICC (Independent Color Control)



Dropper

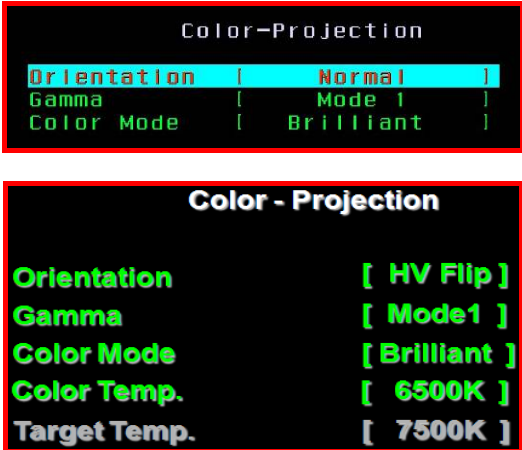
10. On Screen Menu Overview

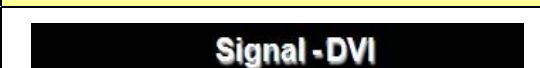
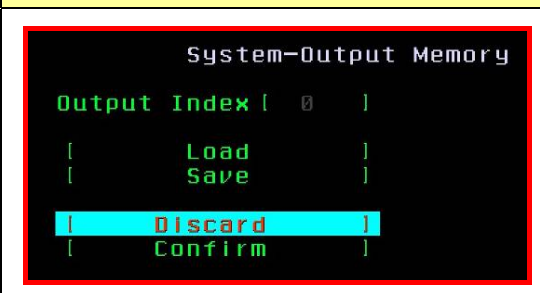
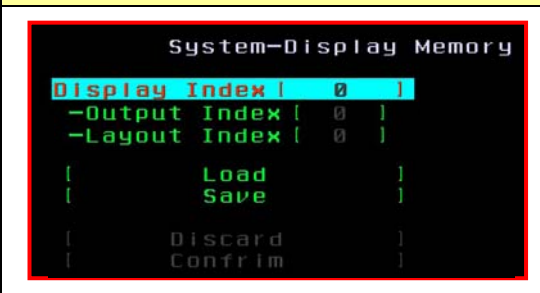
Press the Menu key of your Remote and the screen menu displays.

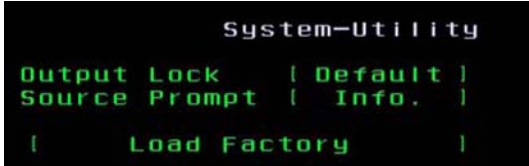
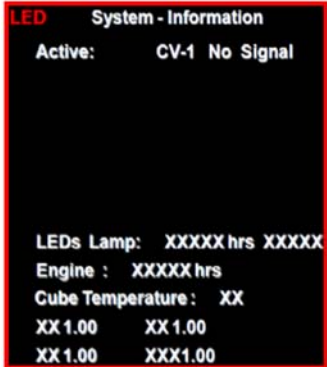
<Remark> Please contact with Lumens for adjustment and default values.



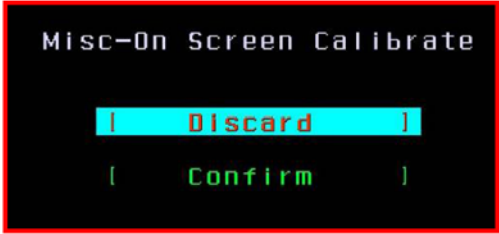
Color - Uniformity	Item	Value/ Selection	Description
For LE-Uxx / LE-Txx	Center R	-128 ~ 127	Adjust the center-to-edge uniformity for brightness
	Center G	-128 ~ 127	
	Center B	-128 ~ 127	
	Hor. R	-128 ~ 127	
	Hor. G	-128 ~ 127	
	Hor. B	-128 ~ 127	
	Ver. R	-128 ~ 127	
	Ver. G	-128 ~ 127	
	Ver. B	-128 ~ 127	
Color-Color Adj.	Item	Value/ Selection	Description
The screenshot shows a black background with green text. The title 'Color-Color Adjust' is at the top. Below it, there are two columns of options. The first column includes 'R-R', 'R+G', 'R+B', 'G-G', 'G+R', 'G+B', 'B-B', 'B+R', 'B+G', 'W-W', 'W-R', 'W-G', and 'W-B'. The second column includes 'C-C', 'G-C-B', 'M-M', 'B-M-R', 'Y-Y', 'R-Y-G', 'R Curve', 'G Curve', 'B Curve', and three empty rows. Each option is followed by its value range in brackets, such as '[0]' or '[512]'. The 'R-R' option is highlighted in red.	R-R	-127 ~ 0	Reduce Brightness of pure red
	R+G	0 ~ 1023	Increase green color in pure red
	R+B	0 ~ 1023	Increase blue color in pure red
	G-G	-127 ~ 0	Reduce Brightness of pure green
	G+R	0 ~ 1023	Increase red color in pure green
	G+B	0 ~ 1023	Increase blue color in pure green
	B-B	-127 ~ 0	Reduce Brightness of pure blue
	B+R	0 ~ 1023	Increase red color in pure blue
	B+G	0 ~ 1023	Increase green color in pure blue

	W-W	0 ~ 1023	Adjust white Saturation
	W-R	0 ~ 1023	Reduce red color in pure white
	W-G	0 ~ 1023	Reduce green color in pure white
	W-B	0 ~ 1023	Reduce blue color in pure white
	C-C	0 ~ 1023	Adjust cyan Saturation
	C+R	0 ~ 1023	Increases red in pure cyan
	G-C-B	0 ~ 1023	Adjust ratio of blue and green colors in cyan
	M-M	0 ~ 1023	Adjust magenta Saturation
	M+G	0 ~ 1023	Increases green in pure magenta
	B-M-R	0 ~ 1023	Adjust ratio of red and blue colors in magenta
	Y-Y	0 ~ 1023	Adjust yellow Saturation
	Y+B	0 ~ 1023	Increases blue in pure yellow
	R-Y-G	0 ~ 1023	Adjust ratio of red and green colors in yellow
	R Curve	-64 ~ 64	Adjust red color in gray
	G Curve	-64 ~ 64	Adjust green color in gray
	B Curve	-64 ~ 64	Adjust blue color in gray
	128W+G	-2 ~ 2	Adjust G element in gradation; use pattern 107 (for model with laser engine)
	128W+B	-2 ~ 2	Adjust B element in gradation; use pattern 107 (for model with laser engine)
Color — projection method			
	Orientation	Normal	Make the projection image normal
		HV Flip	Make the projection image have a horizontal and vertical flip
		H Flip	Make the projection image have a horizontal flip
		V Flip	Make the projection image have a vertical flip
	Gamma	Mode 1	Adjust the Gamma mode 1
		Mode 2	Adjust the Gamma mode 2
		Mode 3	Adjust the Gamma mode 3
	Color Mode (LED Lamp)	Brilliant	Maintain the original color of the LED
		Normal	Normal color gamut

 Signal-Main Board Window Layout Mode [Auto] H-Position [0] V-Position [0] H-Size [1400] V-Size [1050] [Layout Memory]	H Position	-32767~32767	Horizontal Height
 Layout-Layout Memory Layout Index [0] [Load] [Save] [Discard] [Confirm]	V Position	-32767~32767	Vertical Height
	H Size	1 ~ 32767	H Size
	V Size	1 ~ 32767	V Size
	Layout Memory	NA	by enter to select , then Pop out the Layout Memory OSD
	Layout index	0 ~ 63	
	Load	NA	
	Save	NA	
	Discard	NA	
	Confirm	NA	
Signal – DVI	Item	Value/ Selection	Description
 Signal - DVI Brightness [0] Contrast [0] R Offset [0] B Offset [0] R Gain [0] B Gain [0] H-Start [0] V-Start [0]	Brightness	-64 ~ 63	Adjust the brightness of the source
	Contrast	-64 ~ 63	Adjust the contrast of the source
	R Offset	-64 ~ 63	Adjust the offset for deep R, G area of source
	B Offset	-64 ~ 63	Adjust the offset for deep B, G area of source
	R Gain	-64 ~ 63	Adjust the offset for light R, G area of source
	B Gain	-64 ~ 63	Adjust the offset for light B, G area of source
	H-Start	-128 ~ 127	Adjust H-Start position of the signal
	V-Start	-128 ~ 127	Adjust V-Start position of the signal
System — output memory	Item	Value/Selection	Description
 System-Output Memory Output Index [0] [Load] [Save] [Discard] [Confirm]	Output Index	0 ~ 31	Set up output settings (Memory in engine)
	Load		Load
	Save		Save
	Discard		Discard
	Confirm		Confirm
System — Display memory	Item	Value/Selection	Description
 System-Display Memory Display Index [0] -Output Index [0] -Layout Index [0] [Load] [Save] [Discard] [Confirm]	Display Index	0 ~ 511	Display parameters (input + output)
	Output Index	0 ~ 31	Output index value
	Layout index	0 ~ 63	Layout index value
	Load		Load
	Save		Save

	Discard		Discard
	Confirm		Confirm
System — Utility	Item	Value/Selection	Description
	Output Lock	Load Factory	Set the output time
		60Hz	
	Source Prompt	All messages	Enable the input source prompt
		All Off	Disable all the input signal prompt
		No Signal	Prompt “No Signal...” message only when primary input signal is lost
	Cube Fan	0~99	Adjust the speed of cube fan
	TV Distortion		For LE-Uxx / LE-Txx
	Up	0~7	
	Left	0~7	
	Down	0~7	
	Right	0~7	
	Load Factory	NA	
System — Information	Item	Value/Selection	
	Active	NA	Display the source information on the video played
	LEDs lamp	NA	Display use time and frequency of LED lamp
	Laser	NA	Display laser use duration
	Color Wheel (Laser)	NA	Color wheel use life
	Engine	NA	Light Engine use life
	Cube Temperature	NA	Cube temperature, two digits for ENV Temp
	CU Master FW Ver.	NA	Firmware version of main Control unit
	Engine Master FW Ver	NA	Projector firmware version
	DLP FW Ver.	NA	DLP FW Ver.
System — Host	Item	Value/Selection	Description
	iSyetem Balance	NA	Trigger iSystem Balance
	iSyetem mode	Off	The Auto/Manual option enables

System - Host [iSyetem Balance] iSystem Mode [Off] Calibrating Value [Default] [Online Cube List] Online Cube List Page [0] <table><tr><th>Index</th><th>ID</th><th>Lum</th><th>Target</th></tr><tr><td>1</td><td>0000</td><td>xxx</td><td>xxx</td></tr><tr><td>2</td><td>0001</td><td>xxx</td><td>xxx</td></tr></table>	Index	ID	Lum	Target	1	0000	xxx	xxx	2	0001	xxx	xxx	(LED)	Manual	the TI CCA auto color temperature control function
	Index	ID	Lum	Target											
	1	0000	xxx	xxx											
	2	0001	xxx	xxx											
		Auto	The Off option disables the TI CCA function and return the LED back to its original color.												
	iSystem Mode (Laser)	Off	1. Auto option checks the change of each engine's brightness every 10 minutes; when the change is more than 5%, it runs the brightness balance function (iSystem Balance must be performed previously)												
		Manual	2. When Intelligent mode is set to Auto/Manual, Projector mode can only be set to Normal or Economic mode . However, Brightness cannot be selected												
		Auto	3. This function is available only to engines with the intelligent system												
	Calibrating Value	Default	1. Selected calibrating values come into effect only after running the "iSystem Balance" software manually. (For LED series, please restart the device to activate the settings).												
		On Screen	2. Default — use the factory calibrating values of CL200 directly if no HOST is connected. 3. This option is dimmed and cannot be selected in case the iSystem is set to Off. This option is valid only in Auto or Manual mode.												
Online Cube List (LED/ Laser)	NA	- For LED series Display status of connected Cube Brightness: Display brightness differences between connected Cube Target: Enable target values of iSystem function - For Laser series Show connected "Cube ID"													
Advanced —Misc	Item	Value/Selection	Description												
	IndexDly / Phosphor IndexDly	0~719	(Display Misc and OSD items described above)												
	Logo	Off	Enable or disable power on Logo												
		On													
	Logo Time out	30	Elapse time of power-on Logo												
		45													
		60													

  	Error Message	Off	1 Enable or disable error messages of fan and lamp failures 2 If both fan and lamp failed then display the whole row concurrently 3 After other OSD screens disappear, the PROMPT displays until timeout. 4. If the situation persists the display time of PROMPT will be re-defined. 5. The ON status of LAMP will timeout in 10 minutes. 6. In case the Error Message option is set to OFF the 7-notch display of the Control Unit stops showing Error Message at the same time. So does the Panel 10/11 with System Error.
		ON	
	Language	Chinese	
		English	
	Dynamic Mode	Off	Enable Dynamic Mode
		ON	
	Ethernet Setting		Open the Ethernet Setting option This option is dimmed if the network function is disabled. It is selectable only when the network function is active.
	IP address	192.168.128.128	You may use the left- and right-arrow key to adjust value or type desired value with the numeric keypad. Press Enter to confirm your input value.
	Subnet Mask	XXX.XXX.XXX.X XX	You may use the left- and right-arrow key to adjust value or type desired value with the numeric keypad. Press Enter to confirm your input value.
	Geteway	XXX.XXX.XXX.X XX	You may use the left- and right-arrow key to adjust value or type desired value with the numeric keypad. Press Enter to confirm your input value.
	Apply		
	Thermal (LED: LE913/LE923/LE933)	DMD Fan	The system is turned off or the Error Message is prompted in case of DMD Fan failure.
		PWR Fan	The system is turned off or the Error Message is prompted in case of PWR Fan failure.
		HP Fan	The system is turned off or the Error Message is prompted in case of Heat Pipe Fan failure.
		DMD Temp	DMD Temp
		ENV Temp	Environment Temp

	Thermal (Laser: LE-T10/ LE-T20/ LE-T30/ LE-U10/ LE-U20P/ LE-U40)	DMD Fan	The system is turned off or the Error Message is prompted in case of DMD Fan failure.
		PWR Fan	The system is turned off or the Error Message is prompted in case of PWR Fan failure.
		Laser Fan	The system is turned off or the Error Message is prompted in case of Laser Fan failure.
		LMP Fan	The system is turned off or the Error Message is prompted in case of LMP Fan failure
		Cube Fan	Adjust the speed of cube fan
		DRV Fan	The system is turned off or the Error Message is prompted in case of DRV Fan failure
		DMD Temp	DMD Temp
		ENV Temp	Environment Temp
		A2D Temp	AC to DC power Temp
	Calibration in front of screen		
	Discard		Discard
	Confirm		Confirm
	Extra Mode (Laser)	Off	Color auxiliary adjustment mode
		On	

11. Troubleshooting

Contact your dealer if problem persists.

11.1. Problems: No response from IR of the control unit

- Recommended solutions:
 - ◆ Ensure there is battery installed and is installed properly in the remote controller.
 - ◆ Ensure the connection wire between the IR device and control unit is securely connected and free from any damage.

11.2. Problems: The Optical Engine has no power and the LED replacement light is off.

- Recommended solutions:
 - ◆ Please refer to the Machine Installation chapter and make sure all the wires are connected successfully.

11.3. Problems: No light is illuminated when the Power button is pressed

- Recommended solutions:
 - ◆ Verify the correct connection of DVI cable to the machine core.

11.4. Problems: No image is displayed when switching sources

- Recommended solutions:
 - ◆ Verify that the signal and cable to the control unit is connected

11.5. Problems: How do I measure the potential difference

- Recommended solutions:
 - ◆ Use a multimeter and switch to the AC voltage for measurement



- ◆ Take measurements to observe any potential difference between device and cable (**Please specifically confirm the potential difference within the required 10 V**).



Measure the DVI cable

Appendix 1 Supported input mode

1. DVI

DVI Signal					Sync Type
Resolution		Vertical Frequency (Hz)	Remark	Video Standard	DVI
640x480	640x480	60	DVI	VESA	V
	640x480	67	DVI	MAC	V
	640x480	72	DVI	VESA	V
	640x480	75	DVI	VESA	V
720x400	720x400	70	DVI	DOS	NA
800x600	800x600	56	DVI	VESA	V
	800x600	60	DVI	VESA	V
	800x600	72	DVI	VESA	V
	800x600	75	DVI	VESA	V
1024x768	1024x768	60	DVI	VESA	V
	1024x768	70	DVI	VESA	V
	1024x768	75	DVI	VESA	V
1152x864	1152x864	75	DVI	VESA	V
1152x870	1152x870	75	DVI	MAC	V
1280x800	1280x800	60	DVI	VESA	V
1280x960	1280x960	60	DVI	VESA	V
1280x1024	1280x1024	60	DVI	VESA	V
	1280x1024	75	DVI	VESA	V
1366x768	1366x768	60	DVI	VESA	V
1440x900	1440x900	60	DVI	VESA	V
1400x1050	1400x1050	60	DVI	VESA	V
1680x1050	1680x1050	60	DVI	VESA	V
1600x1200	1600x1200	60	DVI	VESA	V
1920x1200	1920x1200	60	DVI	VESA	V
1080P	1920x1080	50	DVI	RGB/YUV format	V
	1920x1080	60	DVI	RGB/YUV format	V
	1920x1080	30	DVI	RGB/YUV format	V
1080i	1920x540	50	DVI	RGB/YUV format	V
	1920x540	60	DVI	RGB/YUV format	V
720P	1280x720	50	DVI	RGB/YUV format	V
	1280x720	60	DVI	RGB/YUV format	V
576P	720x576	50	DVI	RGB/YUV format	V
480P	720x483	60	DVI	Same as 640x480	V