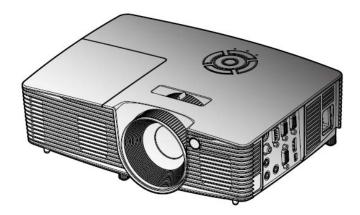
# SERVICE MANUAL



## S310e/X312

Date	Revise Version	Description
2014/11/5	V1.0	Initial Issue

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#### Preface

This manual is applied to S310e/X312 projection system. The manual gives you a brief description of basic technical information to help in service and maintain the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Please send the product back to the distributor for repairing and do not attempt to do anything that is complex or not mentioned in the troubleshooting.

Note: The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in future edition.

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Confidential	i
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### S310e/X312 Comparison List

Parts	S310e	X312
Speaker	NA	49.8KU01G001
DMD CHIP	48.8EH01G003	48.8CQ01G008
IO Cover	70.73605GR01	70.73711GR01
Daughter Board	80.73606G001	80.73706G001
Main Board	80.73606G002	80.73706G002

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# Introduction

### 1-1 Highlight

No	Item	Description	
1	Dimensions (WxDxH)	<ul> <li>314.3x223.6x88.2 mm (with feet)</li> <li>314.3x223.6 x101.7 mm (w/o feet)</li> </ul>	
2	Weight	• 2.5±0.5Kg	
3	Power Supply	• Universal AC 100V-240V±10%, 50-60Hz	
4	Power Consumption	<ul> <li>Bright mode: Typical 254W MAX 280W @110VAC Typical 249W MAX 274W @220VAC</li> <li>ECO mode: Typical 196W MAX 216W @110VAC Typical 194W MAX 213W @220VAC</li> <li>Standby&lt; 0.5W@110V/220VAC</li> </ul>	
5	Keystone correction	• +/-40 degree	
6	Throw ratio	• 1.95~2.15(D/W)@60"	
7	Projection lens	• YM99	
8	Offset	• 115%±5%	
9Lamp lifeECO Mode: • 6000 hours Typical @160W,50% Bright Mode w/ Dynamic Eco+: • 10K Hours 100%~30% dynamic		<ul> <li>5000 hours Standard @190W,50% survival rate</li> <li>ECO Mode:</li> <li>6000 hours Typical @160W,50% survival rate</li> </ul>	
10DMD Chip&Number of active dotsFor X312 • 0.55", XGA DMD,S450, Dark Chip 3 • Number of active dots:1024x768 		<ul> <li>0.55", XGA DMD,S450, Dark Chip 3</li> <li>Number of active dots:1024x768</li> <li>For S310e</li> <li>0.65", SVGA DMD,S450, Dark Chip 3</li> </ul>	
11	System controller	• TI DDP 4421	
12         Video compatibility         • SECAM: B, D, G, K, K1, L,4.25/4           • SDTV: 480i/p, 576i/p,		<ul> <li>PAL: B, D, G, H, I, M, N,4.43MHz</li> <li>SECAM: B, D, G, K, K1, L,4.25/4.4MHz</li> </ul>	

No	Item	Description	
13	Aspect ration	• 4:3,16:9,Native, Auto	
14	Input signal spec	<ul> <li>VGA-in x1</li> <li>Composite Video x1</li> <li>S-Video x1</li> <li>RS232(9 pin) x1</li> <li>USB x1</li> <li>HDMI V1.4 x 1(for X312)</li> <li>Audio In(stereo),3.5mm x1(for X312)</li> </ul>	
15Temperature16Altitude&Temperature		<ul> <li>Non-operation: Sea Level to 40,000 feet Operating: Sea Level to 10,000 feet (@23°C); manual switch to high altitude mode @5000 feet &amp; above</li> <li>Operating: 5 ~ 40°C in bright(normal) mode and ECO mode; Tolerance +/- 2°C</li> <li>Non-operation: -10°C ~ 60°C</li> </ul>	
		<ul> <li>Operating: 0~2,500 ft 5°C~40°C</li> <li>2,500~5,000 ft 5°C~35°C</li> <li>5,000~10,000 ft 5°C~30°C</li> </ul>	

### **1-2 Compatible Mode**

**Computer Compatibility** 

Compatibility	Resolution	Refresh Rate [Hz]
	640x480	60
VGA	640x480	67
VGA	640x480	72
	640x480	85

Compatibility	Resolution	Refresh Rate [Hz]
	800x600	56
	800x600	60(*2)
SVGA	800x600	72
	800x600	85
	800x600	120(*2)
	1024x768	48
	1024x768	50(*4)
	1024x768	60(*2)
XGA	1024x768	70
	1024x768	75
	1024x768	85
	1024x768	120(*2)
	1280x720	50
HDTV(720P)	1280x720	60(*2)
	1280x720	120(*2)
	1280x768	60
	1280x768	75
WXGA	1280x768	85
VVAGA	1280x800	48
	1280x800	50(*4)
	1280x800	60
WXGA(*3)	1366x768	60
WXGA(*5)	1366x768	60
	1280x1024	60
SXGA	1280x1024	75
	1280x1024	85
SXGA+	1400x1050	60
UXGA	1600x1200	60
	1920x1080	24
HDTV(1080p)	1920x1080	50
	1920x1080	60
	1920x1200	60
WUXGA	1920x1200	50(*4)

Compatibility	Resolution	Refresh Rate [Hz]
WSVGA	1024x600	60(3)
SDTV(480i)	720x480	60
SDTV(480P)	720x480	60
SDTV(576i)	720x576	50
SDTV(576P)	720x576	50
WSVGA	1024x600	60(*3)
	1280x800	60(*2)
WXGA	1280x800	120(*2)
	1366x768	60
WXGA+	1440x900	60
	1280x1024	60
SXGA	1280x1024	75
SAGA	1280x1024	85
	1440x900	60
SXGA+	1400x1050	60
UXGA	1600x1200	60
	1920x1080	50
HDTV(1080I)	1920x1080	60
	1920x1080	24
	1920x1080	30
HDTV(1080p)	1920x1080	50
	1920x1080	60

Note: If the Computer Compatibility supportive signal is different from User's Manual, please refer to User's Manual.

# **Disassembly & Assembly Process**

#### 2-1 Equipment Needed & Product Overview

- 1. Screw Bit (+): 105
- 2. Screw Bit (+): 107
- 3. Screw Bit (-): 107
- 4. Hex Sleeves 5mm
- 5. Long Nose Nipper
- 6. Tweezers
- 7. Projector
- \* Before you start: This process is protective level II. Operators should wear electrostatic chains.
- \* Note: If you need to replace the main board, you have to get into service mode and record the lamp usage hour, please refer to section 4-8.
  - As the process of X312 disassembling is the same as S310e, we take S310e for example here.



S310e/X312	Confidential	2-1
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#### 2-2 Disassemble Lamp Cover Module

- 1. Loosen 1 M3\*8.5 screw (as red circle) on the lamp cover.
- 2. Disassemble the lamp cover module.





Lamp Cover

#### 2-3 Disassemble Lamp Module

1. Loosen 1 M3.5\*8.5 screw (as red circle) on the lamp module.

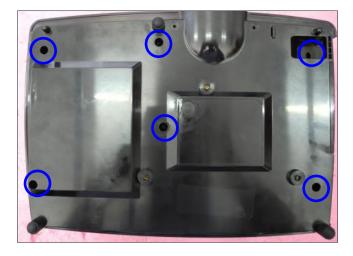


2. Take off the lamp module.

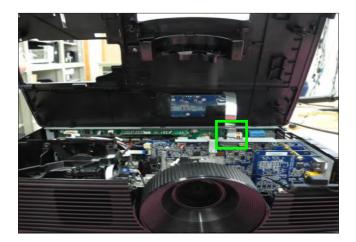


#### 2-4 Disassemble Top Cover Module

1. Unscrew 6 M3\*8 screws (as blue circle) from the bottom cover.



2.Unplug FFC cable(as green square)



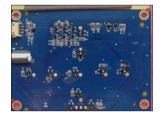
3. Remove the top cover module.

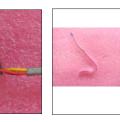


#### 2-5 Disassemble Keypad Board and Zoom Ring

- 1. Unplug 2 connectors(as yellow square).
- 2.Unfasten 3 tenons (as green square) to disassemble the IR sensor board.
- 3.Unscrew 4 M2.6\*5 screws (as red circle).







Keypad Board

IR Board

- 4. Remove the keypad board.
- 5. Unscrew 1 M3\*6 screw(as blue circle).
- 6. Remove the zoom ring from top cover module.



Zoom Ring

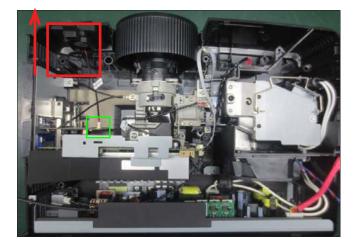
Top Cover

#### 2-6 Disassemble Speaker(Only for X312)

1.Unplug 1 connector(as green square).

2.Remove the speaker(as red square).

3 .Separate rubber and the speaker.







### 2-7 Disassemble Lamp Housing

1.Unplug 3 connectors(as red square).

2.Unscrew 3 M2.6\*6 screws (as red circle) to disassemble the lamp housing.



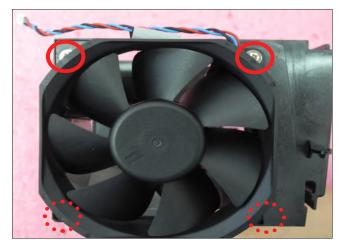




3.Unscrew 1 M3\*4 screw (as blue circle).

#### 2-8 Disassemble System Fan

1. Unscrew 4 M3\*10 screws (as red circle) to disassemble the System Fan.



**Note**: - Take the fan module as the right gesture.





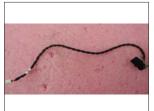
the right gesture

the wrong gesture

#### 2-9 Disassemble Interlock Switch

1. Unscrew 1 M2.6\*7 screw (as red circle) to disassemble the Interlock switch.

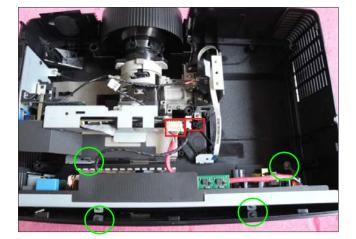




Interlock Switch

#### 2-10 Disassemble LVPS

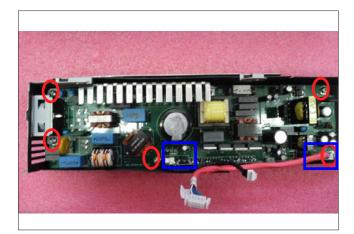
1. Unplug 2 connector(as red square).



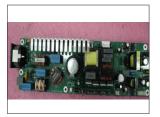
2. Unscrew 4 M2.6\*6 screws (as green circle) to disassemble the LVPS and holder .

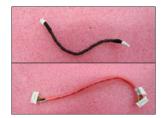


3. Unplug 2 connectors(as blue spuare).



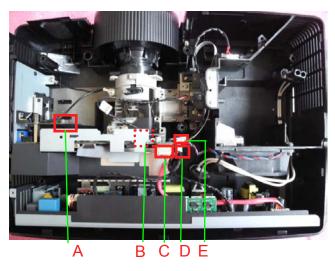
4. Unscrew 5 M3\*8 NI screws (as red circle) to disassemble the LVPS .





LVPS

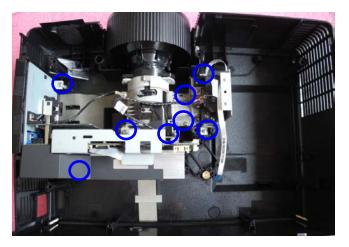
#### 2-11 Disassemble Engine Module and Main Board Module



Please refer to the table as below for details of each connector.

ltem	Male Conector on Main Board	The key feature	Figure
А	Speaker (Only for X312)	Compose of Red/Black Wire (2 pin)	
В	Photo Sensor	Compose of Red/White/ Black Wire (3 pin)	0
С	LVPS A	Red wire tube (10 pin)	Edder of the
D	LVPS B	Black wire tube (5 pin)	
E	Fan	Compose of Red/Blue/ Black Wire (3 pin)	

1. Unscrew 8 M2.6\*8 screws (as blue circle)





2. Unscrew 4 H4\*L8 hex screws (as green circle) and 1 M2.6\*8 screw to disassemble IO cover .



3. Remove IO cover

4.Unscrew 2 M2.6\*6 Ni screws(as green circle)

5.Unplug 1 connector(as yellow square) to disassemble photo sensor board.

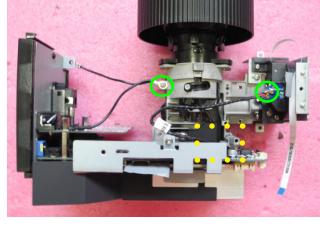




Photo Sensor Board





Focus Ring

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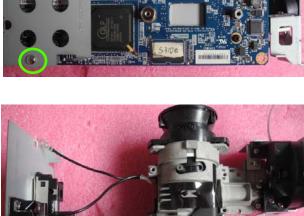
6.Unscrew 1 screw M1.7\*4(as red circle)and unfasten 2 tenons (as green square) to push out the focus ring (as red arrow).

7. Remove the zoom ring.

8. Unscrew 2 M2.6\*16.2 screws to disassemble heatsink(as red circle).

9. Unscrew 2 MECH M3\*6 screws (as green circle)

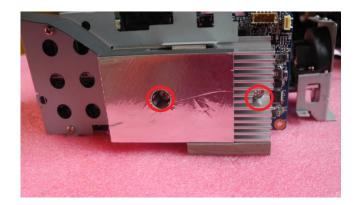
10.Unscrew 1 screw M3\*6 to disassemble the top shielding.



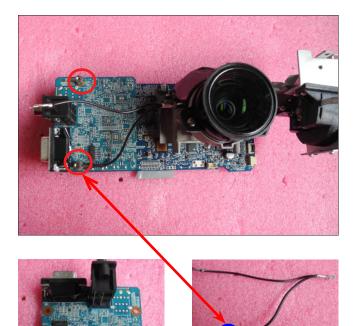








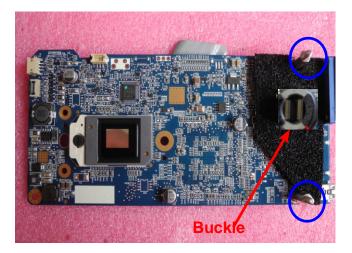
- 11.Unscrew 2 hex screws (as red circle) to disassemble the daughter board.
- Note:Assemble the daughter board,please make sure the iron does not touch IC of daughter board(as blue circle).



12.Unscrew 2 M2.6\*5 screws(as green circle) and unscrew 1 M2.6 screw(as red circle) to separate engine module and main board module.



13.Take off buckle and unscrew 2 hex screws (as blue circle) .



- 14.Rotate the screw (as yellow circle) 180° counterclockwise to disassemble DMD chip.
- Note: Avoid touching the DMD Chip when you disassemble it.
  - Pay attention to the fixed position when assembling the DMD Chip.

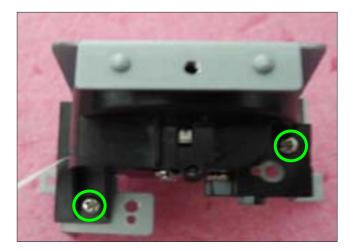




15. Unscrew 2 M2.6\*6 screws(as red circle) to disassemble the color wheel module and color wheel holder.



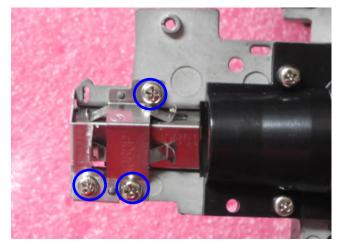
17. Unscrew 2 M2.6\*6 Ni screws (as green circle) to disassemble the color wheel module.

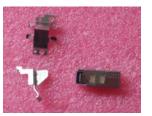




Color Wheel Modulle

18.Unscrew 3 M2.6\*6 Ni screws (as blue circle) to disassemble the ROD module.







ROD Module

Engine Module

#### 2-12 Disassemble Lens

1.Unscrew 3 BINDING MECH M2.6\*6 screws (as red circles)

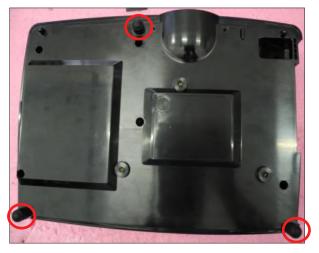


Note:1.Before assemble the new engine,please clean the dusty from engine base by air gun firstly .

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#### 2-13 Disassemble Bottom Cover Module

1. Unscrew 3 adjust feet. (as red circle).





- 2. The remaining is Bottom Cover Module.
- 3. Disassemble is completed.



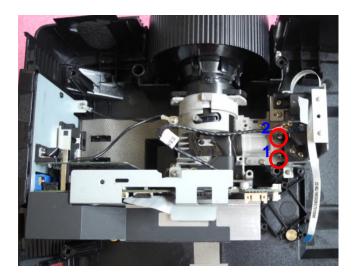
Bottom Cover

#### 2-14 Rod Adjustment

- 1. Environment Adjustment
  - The size of screen is 60".
  - This process should be done at a dark environment (under 2 Lux).
- 2. Procedure Adjustment
  - Change the screen to "white screen".
  - Adjust the screws by using the rod on the engine module to readjust the image.

("Screw 1" should be adjusted first, and then "screw 2". Adjust until the yellowish or bluish parts disappeared.)

- 3. Abnormal image inspection
  - It should not have any abnormal color at the frame of the image by estimating through the eyes.
- Note: To avoid over adjusting the rod.
  - After the opreation, please use the glue to fix the screws.



### 2-14 Screw Torque

Description	Torque
LOCK SCREW PAN MECH M3*8.5-3.5 BLACK NYLOCK SPRING WASHER	5.0±0.2 Kgf-cm
SCREW PAN TAP M3*8 NI	6.5±0.3 Kgf-cm
SCREW PAN TAP M3*6 NI	5.0±0.5kgf-cm
SCREW PAN HEAD TAP M2.6*6	5.0±0.2 Kgf-cm
SCREW CAP TAP M2.6*7 WASHER BLACK	5.0±0.5kgf-cm
SCREW PAN MECH M3*10 NI NYLOK	3.0±0.5kgf-cm
SCREW ISO M3*8MM NI PH W/LW	3.0±0.5kgf-cm
SCREW PAN HEAD TAP M2.6*8	5.0±0.2 Kgf-cm
SCREW HEX I/O #4-40 H4*L8 NI NYLOK	3.0±0.2 Kgf-cm
SCREW PAN MECH M2.6*6 Ni NYLOK	3.0±0.5 Kgf-cm
STEP SCREW FOR DMD M2.6*16.2mm X116	3.0±0.2 Kgf-cm
SCREW PAN MECH M2.6*5 Ni NYLOK	3.0±0.5 Kgf-cm
ADAPTER SCREW M2.6 X113	5.0±0.2Kgf-cm
SCREW PAN MECH M3*6 NI	3.0±0.5kgf-cm
HEX SPACER M3 H=17mm L=5mm AL PD726	1.5±0.5 Kgf-cm
SCREW BINDING MECH M2.6*6 Ni NYLOK	3.0±0.5kgf-cm

#### 2-15 Repair Action

Densis estim		Change parts Software Descri	Description				
Repair action	Main Board	Lamp Module	Engine Module	Fan	Color Wheel	Firmware	page
Firmware Update	v					v	Chapter 5
ADC Calibration	v					v	Chapter 4-4
Color Wheel Index	v				v		Chapter 4-5-1.8
OSD Reset	v	v				v	Chapter 4-7.2
EDID	v						Chapter 6
Re-write Lamp Usage Hours	v						Chapter 4-8
S Video port test/ Video port test	v						chapter 4-5-3/4
Fan Calibration	v			v		v	Chapter 4-3
Optical Performance Measure			v				Chapter 4-5-1.9

Note: - If Color appears abnormal after changing Main Board Module, please do Color Wheel index adjustment and after changing parts, check the information above table.

# Troubleshooting

### 3-1 LED Lighting Message

Magazara	Power LED		Temp_LED	Lamp_LED
Message	Red	Green	Red	Red
Standby State (Input Power cord)	*			
Power on (Warming)		Flashing		
Lamp lighting		*		
Power off (Cooling)		Flashing		
Error (Lamp Fail)	Flashing			*
Error (Fan Fail)	Flashing		Flashing	
Error (Over Temp)	Flashing		*	

Note: No Light: "--"
\*Steady light

#### 3-2 Main Procedure

No	Symptom	Procedure
	- Ensure the Power Cord and AC Power Outlet are securely connected	
1	No Power	<ul> <li>Ensure all connectors are securely connected and aren't broken</li> </ul>
		- Check LVPS
		- Check Main Board
		<ul> <li>Ensure the projector is not put on a soft pad and the air vent is not blocked.</li> </ul>
		a. Lamp failed:Power LED( flashes red),Lamp LED lights red
		- Check Lamp
		- Check LVPS
		- Check Main Board
		b. Fan failed:Power LED (flashes red), Temp LED (flashes red)
2	Auto Shut Down	- Check whether have execute Fan Calibration
		- Check Fan
		- Check Main Board
		- Check Color Wheel Module
		- Check Photo Sensor Board
		c. Over Temp:Power LED (flashes red),Temp LED lights red
		- Check Fan
		- Check Main Board
		<ul> <li>Ensure all connectors are securely connected and aren't broken</li> </ul>
		- Check Lamp Cover, Intelock Switch
		- Check Lamp Module
3	No Light On	- Check LVPS
		- Check Main Board
		- Check Color Wheel
		- Check Photo Sensor Board

No	Symptom	Procedure
		<ul> <li>Ensure the Signal Cable and Source work</li> <li>(If you connect multiple sources at the same time, use the "Source" button switch)</li> </ul>
		<ul> <li>Ensure all connectors are securely connected and aren't broken</li> </ul>
4	No Image	- Check Main Board
		- Check DMD Chip
		- Check Color Wheel
		- Check Engine Module
		- Daughter Board
5	Mechanical Noise	- Check Color Wheel
5	Mechanical Noise	- Check Fan Module
		- Check Main Board
6 Line Bar/Line Defect	- Check DMD Chip	
		- Do "Reset (All data)" of the OSD Menu
		- Ensure that the signal cables and source are work as well
-		- Check Lamp Module
7	Image Flicker	- Check Color Wheel
		- Check Photo Sensor and clean Photo Sensor
		- Check Main Board
		- Do "Reset (All data)" of the OSD Menu
		- Adjust Color Wheel Index
8	Color Abnormal	- Check Main Board
		- Check Color Wheel
		- Ensure the projection screen without dirt
		- Ensure the projection lens is clean
9	Poor Uniformity/ Shadow	- Ensure the Brightness is within spec
	Chadow	- Check rod alignment
		- Check Engine Module

No	Symptom	Procedure
	- Ensure the projection screen without dirt	
	- Ensure the projection lens is clean	
10	Dead Pixel/Dust (Out of spec.)	- Clean DMD Chip and Engine Module
	(Out of spec.)	- Check DMD Chip
		- Check Engine Module
	<b>.</b>	- Ensure that the signal cables and source work as well
11	Garbage Image	- Check Main Board
		- Remote Controller
		a. Check Battery
12	Remote Controller Failed	b. Check Remote Controller
	Talled	c. Check IR Sensor Board
	d. Check Main Board	
		- Do "Reset (All data)" of the OSD Menu
13	Function Abnormal	- Check Main Board
		- Daughter Board
		- Ensure that the signal cables and source are work as well
	Audio Abnormal	- Ensure that your Projector is not in "Mute" mode
14	(For the projector has	- Check Main Board
	speaker)	- Daughter Board
		- Check Speaker
		<ul> <li>Ensure the using 3D glasses is good and you must face the projection.</li> </ul>
15	2D Imago Abnormal	- Ensure the signal source is 3D format.
10	3D Image Abnormal	<ul> <li>Ensure the 3D function of projector OSD is on and 3D sync invert is on.</li> </ul>
		- Check Main Board.

# **Test & Inspection**

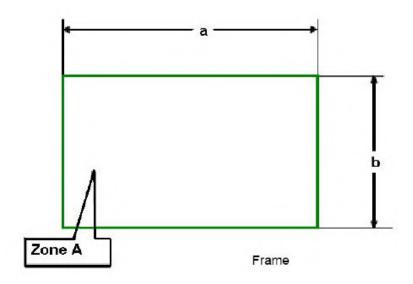
#### 4-1 Test Equipment Needed

- PC support HDTV resolution & Independent graphic card
- Blue- ray DVD player support "S-Video", "3D source files", "HDMI" and "Video"
- Minolta CL-200
- Quantum Data 802B or CHROMA2327 (Color Video Signal & Pattern Generator)

#### **4-2 Test Condition**

- Circumstance brightness: Dark room less than 2 lux.
- Product must be warmed up for 3 minutes.
- Screen size: 60 inches diagonal.

#### **Zone Definition**



< Figure: Zone A(as green line) Definition >

#### 4-3 Fan Calibration

After replacing main board, fan, or upgrading the firmware, please follow steps as below:

- 1. Power on the projector,after the "Logo" disappeared,then press "power","left","left","right",the Picture A will show.
- 2. After several minutes, you can check the fan RPM as red circle:
  - a. Please get into Service Mode.
  - b. Select "Fan menu", then press "Enter", Fan detail information will be shown.

Note:- If the factory fan value don't show in service mode, please repeat the step 1,2 again.

- Make sure the "Blower Factory RPM "is 1840-2760.

A Pan Speed Will A	uto Save.
Picture A	1
Lamp Hours(Bright)	4:00
Lamp Hours(Eco)	
Lamp Hours(Dynamic)	
Power On/Off	4/2
Waveform ID	77
Security Code	1234
Read SNID	07364055551
2X CW Index	288
3X CW Index	281
Burn In	
Spoke Test	
Test Pattern	
Error Log	
USB Mode	Debug 🕨
Fan Menu	
Blower Factory RPM	
Celibration	
Factory RPM Save	Off 🕨
Factory Reset	
Exit	

#### 4-4 ADC Calibration

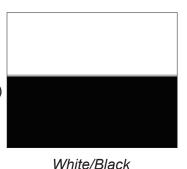
Note: X312 the native resolution of test signal is 1024x768@60HZ. S310e the native resolution of test signal is 800x600@60HZ. We take S310e for example here.

#### 1. PC Calibration

Procedure

- Test equipment: video generator

- Once Main Board is changed. PC Calibration should be done as well.
  - (1) Test signal analog: 800 x 600@60Hz
  - (2) Test Pattern: 94%White(up)/6% Black (down)
- Note
  - (1) Calibration pattern should be in full screen



	<ul> <li>(2) Please press "power", "up", "right", "up", "left", "Menu" buttons sequentially to get into service mode.</li> <li>(3)Choose "Calibration", press "Enter" button then select "PC Calibration", When the message "Success" appears, it means "ADC Calibration" is OK. Choose "Menu" or "Exit" to leave service mode.</li> </ul>	Spin Te Err US Fai Cu Bio Ca Ca Ex Fa Fa Fa
Check pattern	- Test signal: 800 x 600 @60Hz	PC
	- Test pattern: 64 gray RGBW	PC
	<ul> <li>* After finishing ADC adjustment, check 64 gray RGBW pattern.</li> </ul>	PC Re
Inspection item	- Color saturation	
Criteria	<ul> <li>There should not have any lack of RGBW. The color should appear normal and sort in right order.</li> <li>Color levels should be sufficient and normal. (the unidentified color levels on both left and right sides should not over 8 color levels.)</li> </ul>	
	,	



Analog Setting:	VGA
PC Calibration	Success
PC Red Offset	508
PC Green Offset	522
PC Blue Offset	518
Red Gain	1262



64 gray RGBW

#### 4-5 I/O Port Test

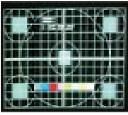
#### 4-5-1 VGA Port Test

- Note:1.If you don't have the professional equipments such as Quantum Data 802B or CHROMA2327,please use the PC that support HDTV resolution & Independent graphic card to output the corresponding PC pattern.You can download the "test pattern by PC" from website as right picture.
  - 2.X312 the native resolution of test signal is 1024x768@60HZ. S310e the native resolution of test signal is 800x600@60HZ. We take S310e for example here.



### 1. Frequency and tracking boundary

Procedure	- Test equipment: video generator.
	- Test signal: analog 800x600@60Hz
	- Test Pattern: general-1 or master
	<ul> <li>Check and see if the image sharpness is well</li> </ul>
	performed.
	<ul> <li>If not, re-adjust by the following steps:</li> </ul>
	<ol> <li>Select "Frequency" function to adjust the image ap- pears to flicker vertically.</li> </ol>
	(2) Select "Phase" function and use right or left arrow key to image appears to be unstable or flickers.
	- Adjust Resync or Frequency/Phase/H. Position/V. Position to the inner screen.
Inspection item	<ul> <li>Eliminate visual wavy noise by Resync, Frequency or Tracking selection.</li> </ul>
	- Check if there is noise on the screen.
	<ul> <li>Horizontal and vertical position of the video should be adjustable to the screen frame.</li> </ul>
Criteria	<ul> <li>If there is noise on the screen, the product is consid- ered as failure product.</li> </ul>
	<ul> <li>If there is noise on the screen, use auto or manual "frequency" function or "tracking" function to adjust the screen.</li> </ul>
	- The PC mode functionally sure be workable include support format with frequency and auto detected functional will be workable.



General-1



Master

#### 2. Bright Pixel

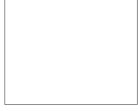
Procedure	- Test equipment: video generator.
	- Test signal: analog 800x600@60Hz
	- Test Pattern: gray 10
Inspection item	- Bright pixel check.
Criteria	- Please refer to Pixel specification table.



Gray 10

#### 3. Dark Pixel

Procedure	- Test equipment: video generator.
	- Test signal: analog 800x600@60Hz
	- Test Pattern: full white
Inspection item	- Dead pixels check.
Criteria	- Please refer to Pixel specification table.



Full white

### 4. Bright Blemish

Procedure	<ul> <li>Test equipment: video generator.</li> </ul>
	- Test signal: analog 800x600@60Hz
	- Test Pattern: gray 10
Inspection item	- Bright blemish check.
Criteria	- Please refer to Pixel specification table.

#### 5. Dark Blemish

Procedure - Test equipment: video generator.	
	- Test signal: analog 800x600@60Hz
	- Test Pattern: blue 60
Inspection item	- Dark blemish check
Criteria	- Please refer to Pixel specification table.

Gray 10



### **Pixel specification**

#### For X312

Order	Symptom	Pattern	Criteria
1	Dark Blemish	Blue 60	<ol> <li>≤ 4 visible dark blemishes are allowed in the active area</li> <li>No blemish will be &gt; 1.5" long/ diameter</li> </ol>
2	Light Blemish	Gray 10	<ol> <li>≤ 4 visible light blemishes are allowed in the active area</li> <li>No blemish will be &gt; 1.5" long/ diameter</li> </ol>
3	Reset Boundary Artifact	Gray 30	1. No reset boundary artifacts allowed

Order	Symptom	Pattern	Criteria
4	Eyecatchers / Border Artifacts	Black	1. Eyecatcher and border artifacts are allowed
5	Projected Images	<ol> <li>Any screen</li> <li>Gray 10</li> <li>Any screen</li> <li>Gray 10</li> <li>Gray 10</li> <li>White</li> <li>Any screen</li> <li>Black or</li> <li>White</li> </ol>	<ol> <li>No adjacent pixels</li> <li>No bright pixels in Active Area</li> <li>No unstable pixels in Active Area</li> <li>≤ 1 bright pixel in the POM</li> <li>≤ 4 dark pixels in the Active Area</li> <li>No DMD window aperture shadowing on the Active Area</li> <li>Blemishes are allowed</li> </ol>

#### For S310e

Order	Symptom	Pattern	Criteria
1	Dark Blemish	Blue 60	<ol> <li>≤4 visible dark blemishes are allowed in the active area</li> <li>No blemish will be &gt; 1.5" long/ diameter</li> </ol>
2	Light Blemish	Gray 10	<ol> <li>≤ 4 visible light blemishes are allowed in the active area</li> <li>No blemish will be &gt; 1.5" long/ diameter</li> </ol>
3	Reset Boundary Artifact	Gray 30	1.No reset boundary artifacts allowed
4	Eyecatchers / Border Artifacts	Black	1.Eyecatcher and border artifacts are allowed
5	Projected Images	<ol> <li>Any screen</li> <li>Gray 10</li> <li>Any screen</li> <li>Gray 10</li> <li>Gray 10</li> <li>White</li> <li>Any screen</li> <li>Black or</li> <li>White</li> </ol>	<ol> <li>No adjacent pixels</li> <li>No bright pixels in Active Area</li> <li>No unstable pixels in Active Area</li> <li>≤ 1 bright pixel in the POM</li> <li>≤ 3 dark pixels in the Active Area</li> <li>No DMD window aperture shadowing on the Active Area</li> <li>Blemishes are allowed</li> </ol>

#### 6. Focus Test

Procedure	- Test equipment: video generator. - Test signal: analog 800x600@60Hz - Test Pattern: full screen
Inspection item	- Focus check
Criteria	<ul> <li>look at the entire screen, focus shall be clear, crisp, and sharp over the entire surface of the display</li> </ul>
	pattern. (Blur word on one of the corner after
	adjustment is acceptable. However, the word should at least be recognizable.)

#### 7.Unbalance test

Procedure	- Test equipment: video generator.
	- Test signal: analog 800x600@60Hz
	- Test Pattern: full screen
Inspection item	- Unbalance check
Criteria	- Test signal:analog 800x600@60Hz
	- Unbalance <=37cm@60"



Full screen

Note: If focus could not clarify, you can use the unbanlance test that you put a white paper far away screen front or behind until the focus is best , then measure the distance from paper and screen within the specification.

#### 8. Color Performance

Procedure	- Test equipment: video generator.
	- Test signal: <b>800x600@60Hz, 1080i</b> - Test Pattern: 64 gray RGBW
	Please get into service mode.Use 720p & 1080p signal, pattern to do color performance. Color cannot discolor to purple and blue.
Inspection item	<ul> <li>Check if each color level is well-functioned.</li> <li>Color saturation</li> </ul>

Criteria	- Screen appears normal. It should not have any
	abnormal condition, such as lines appear on the screen and so on.
	- Color appears normal.

- It is unacceptable to have few lines flashing.
- RGBW should all appear normal on the screen and sort from R-G-B-W.
- Color levels should be sufficient and normal. (The unidentified color levels on both left and right sides should not over 4 color levels.)
- Gray level should not have abnormal color or heavy lines.
- If color appears abnormal, please get into service mode to do color wheel index adjustment.



64 gray RGBW

#### 9. Optical Performance

#### Inspection Condition

- Environment luminance: 2 Lux
- Product must be warmed up for 5 minutes
- Screen Size: Screen size: 60 inches diagonal.

#### a. Measure setting

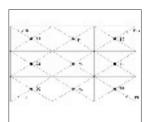
Procedure

 Please get into OSD menu, select "Lamp Setting" under "Options", press "Enter" button, then select "Brightness "mode,

- "Format" is "4:3"
- Test equipment: Select "Spoke Test".
- Test signal: analog 1024x768@60Hz(For X312) analog 1280x800@60Hz(For S310e)

#### b. Brightness

Procedure	<ul> <li>Full white pattern</li> <li>Use CL100 to measure brightness values of P1~P9.</li> </ul>
	<ul> <li>Follow the brightness formula to calculate brightness values.</li> <li>Brightness Formula</li> </ul>
Critoria	Avg. (P1~P9)*1.1m2
Criteria	•1028 ANSI lumen



Full white pattern

c. Full On/Full Off Contrast

Procedure	- Full white pattern & Full black pattern	
	- Use CL100 to measure brightness values of full	- 14
	white pattern P5 & full black pattern B5 ( see	
	image: full white)	
	- Follow Contrast formula to calculate contrast values.	
	🜣 Contrast Formula	Full black pattern
	P5/B5	
	Note: P5 = Lux of center in full white pattern	
	B5 = Lux of center in full black pattern	
Criteria	• 1760:1	

d. Uniformity		
Procedure	- Full white pattern	~~~
	<ul> <li>Use CL100 to measure brightness values of P1~P9 (see image: full white).</li> </ul>	$\rightarrow$
	<ul> <li>Follow the Uniformity formula to calculate average values.</li> <li>Uniformity Formula</li> </ul>	Full white pa
	JBMA Uniformity = Avg. (P1, P3, P7, P9) / P5 *100%	
Criteria	• 70%	

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### 4-5-2 Audio Port Test(Only for X312)

Procedure	- Test equipment: DVD Player
	- Test signal: CVBS
Inspection item	- Audio performance test
Criteria	- Check the sound from speaker
	- Plug Audio cable into Audio in port,
	check whether "Volume" is normal.
	-Adjust the volume to " $0 \rightarrow 8$ " by using the remote controller.
	- Check the sound from speaker.

#### 4-5-3 S-Video Port Test

Procedure	- Test equipment: DVD player
	- Test signal: Video
Inspection item	- Video performance test
Criteria	- Check any abnormal color, line distortion
	or any noise on the screen.



Motion video

#### 4-5-4 Video Port Test

Procedure	- Test equipment: DVD player
	- Test signal: Video
Inspection item	- Video performance test
Criteria	- Check any abnormal color, line distortion
	or any noise on the screen.

- Check the sound from speaker.

### 4-5-5 HDMI Port Test(Only for X312)

Procedure	<ul> <li>Test equipment: DVD Player with HDMI output.</li> </ul>
	- Test signal: 1080p@60 Hz
Inspection item	- HDMI performance test.
Criteria	<ul> <li>Ensure the image is well performed and the color can not discolor.</li> </ul>

#### 4-5-6 3D Test

Procedure	<ul> <li>Test equipment: 1. Blue-Ray DVD player &amp; 3D format CD</li> </ul>
Inspection item	- 3D test (S-Vide)
	- Press "3D"key on the remote and 3D is set to
	"DLP-Link".
Criteria	<ul> <li>The image should not appear noise, flicker shadow, shocking,abnormal color.</li> </ul>

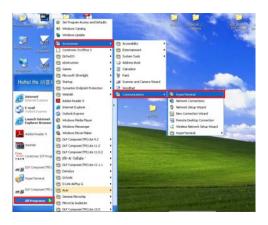
### 4-5-7 3D Test(Only for X312)

Procedure	<ul> <li>Test equipment: 1. Blue-Ray DVD player &amp; 3D format CD</li> <li>Test signal: 720p@60Hz 1080i@50Hz</li> </ul>
Inspection item Criteria	<ul> <li>3D test (HDMI)</li> <li>The image should not appear noise, flicker shadow, shocking,abnormal color.</li> </ul>

#### 4-5-7 RS232 Port Test

#### 1. Projector setting

- Plug in the power cord, turn on the power switch. Connect projector and PC by RS232 cable
- Note: RS232 cable: Female to female RS232 Cable :42.86603G001



Connection Descriptio	in	? 🛛
Name:	an icon for the connection:	
OPTOMA		
Icon:	· 🌆 🎯 🐻	3
	OK	Cancel

#### 2. Setup Hyper Terminal

(1) Enter to Hyper terminal via communication.

(2) Enter a name, then click "OK".

(3) Select com port which you are using, then click "OK".

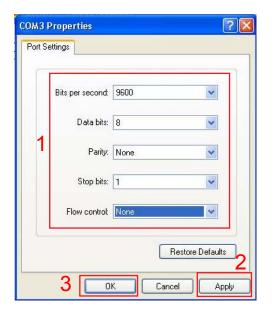
Connect To	? 🛛
	A
Enter details for I	the phone number that you want to dial:
Country/region:	United States (1)
Area code:	11
Phone number:	
Connect using:	СОМЗ
L	
	OK Cancel

(4) Setup COM port properties.

- Bits per second:9600
- Data bits:8
- Parity:None
- Stop bits:1
- Flow control:None
- (5) Click "Apply", then click "OK".

(6) Select "File" and choose "Properties".

- (7) Terminal Settings
  - Function, arrow, and ctrl keys act as: Termina keys
  - Backspace keys sends:Ctrl+H
  - Emulation:Auto detect
  - Telnet terminal ID:ANSI
  - Backscroll buffer lines:500
  - Then choose "ASCII Setup".



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Idt New Call Tran	ler Mb	
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Properties		
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Backspace key send		
Emulation:		
Auto detect	Terminal Setup	
Telnet terminal ID:	ANSI	
Backscroll buffer lines:	500	
Play sound when contract of the second secon	ASCII Setup	
	OK Cance	

#### (8) ASCII Setup

- Choose "Send line ends with line feeds"
- Choose " Echo typed characters locally"
- Choose "Append line feeds to incoming line ends"
- Choose "Wrap lines that exceed terminal width"
- Then click "OK".

(9) Click "OK" to close the window.

- (10) Input the RS232 commond "~0000 1",
  - then press "Enter".
  - The projector will feedback "P" from the hyper terminal. and the projector will be powered on.
  - If you have turned on the projetor, you also can use the RS232 command "~0000 0" to turn off the projector.

#### Note:Projector returns "P":Pass

Projector returns "F":Fail

ASCII Setup 🛛 💽 🔀
ASCII Sending
<ul> <li>Send line ends with line feeds</li> <li>Echo typed characters locally</li> </ul>
Line delay: 0 milliseconds.
Character delay: 0 milliseconds.
ASCII Receiving
Append line feeds to incoming line ends
Force incoming data to 7-bit ASCII
Vrap lines that exceed terminal width
OK Cancel

OPTOMA Properties		? 🛛
Connect To Settings		
<ul> <li>Function, arrow, and one</li> <li>Terminal keys</li> </ul>		
Backspace key sends		
Emulation:		-
Auto detect	💌 🗌 Terminal Setup	
Telnet terminal ID:	ANSI	
Backscroll buffer lines:	500	\$
Play sound when co	nnecting or disconnecting	
Input Translation	ASCII Setup	
	ОК	Cancel

COTOMA - HyperTerminal	E161
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[]	
P	

# 4-6 Run In Test

- Temperature: 15°C~35°C
- Circumstance brightness: Normal environment
- Screen size: No concern
- Display mode: ECO mode

After repairing each unit, a Run-in test is necessary (refer to the below table).

Symptom	Run-in Time
Normal repair	2 hours
NFF	4 hours
Auto shutdown	6 hours

- Get into Burn-In Mode

\* Cycle setting is based on the defect symptoms. ie: If it is NFF, the run-in time is 4 hours. You have to set the lamp on for 60 min. and lamp off for 10 min for 4 cycles.

Press Power off >Up >Right >Up >Left >Menu buttons sequentially on remote controller to get into service mode.		
Choose Burn-In Test > enter		
Lamp On	Press right key to adjust the time (60)	
Lamp Off	Press right key to adjust the time (10)	
Set burn in cycle Press right key to adjust the cycle		
After setting up the time, choose "Get into Burn-In Mode" and press enter		

Note:During Brun in test, if you want to end the process, please enter power button.

### **4-7 Test Inspection Procedure**

#### 1. Check Points

Check item	Check point
Firmware version	All firmware version must be the latest version
TB implementation	Related TB must be implement
Cosmetic	Cosmetic can not be broken
Logo	Missing logo, missing prints and blurry prints are unacceptable
Lamp cover	It should be locked in the correct place.
Zoom in/out	The function should work smoothly
Keypad	All keypad buttons must operate smoothly

#### 2. OSD Reset

After final QC step, we have to erase all saved change again and restore the OSD default setting.

The following actions will allow you to erase all end-users' settings and restore the default setting:

- (1) Please enter OSD menu.
- (2) Choose "SETUP" and then execute "Reset" function, select "All".

### 4-8 Re-write Lamp Hours Usage

- 1. Get into service mode
  - Press power→up→right→up→left→
     Menu to get into service mode.
  - -Select "Exit",then press"left" or "right" key for six times.
- Re-write Projection Hours
   Select System Hours and use "left" or "right" buttons to re-write the projection hours.
- Re-write Lamp Hours(Bright)

   Select Lamp Full Hours and use
   "left" or "right" buttons to re-write the lamp hours(Normal).
- Re-write Lamp Hours(ECO)
   -Select Lamp ECO Hours and use "left" or "right" buttons to re-write the lamp hours(ECO).

MCU Ver.	M06
Projection Hours	4.00
Lamp Hours(Bright)	
Lamp Hours(Eco)	
Lamp Hours(Dynamic)	
Power On/Off	4/2
Waveform ID	77
Security Code	1234
Read SNID	07364055551
2X CW Index	288
3X CW Index	281
Burn In	
Spoke Test	
Test Pattern	
Error Log	
USB Mode	Debug
Fan Menu	
Blower Factory RPM	
Celibration	· · ·
Factory RPM Save	Off
Fectory Reset	
Exit	

5. Re-write Lamp Hours(Dynamic)-Select Lamp Dynamic Hours and use "left"or "right" buttons to re-write the lamp hours(ECO).

Other Settings	
System Hours	4
Lamp Full Hours	4
Lamp ECO Hours	2
Lamp Dynamic Hours	0
SOG Slicer Threshold	12
RS232 Baud Rate	110
AC Plugin Auto Power On	Off
Dust Chamber Test	
Return to Service Menu	-84 (1990) - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990

6. Choose "Exit", press "Enter" to exit

Note: left key = decrease lamp hour right key =increase lamp hour

# **Firmware Upgrade**

# **5-1 Equipment Needed**

#### Software:

- DLP Composer Lite V11.2
- Firmware (\*.img)
- 11.2 FlashDeviceParameters
- Note: Please download "DLP Composer Lite 11.2" and "11.2 FlashDeviceParameters" from website to upgrade FW procedure.

#### Hardware:

- Projector
- Power cord: 42.50115G001
- Mini USB Cable: 42.00284G001
- PC or Laptop
- Note: The FW upgrade procedures for S310e is the same as X312, we take S310e for example here.



S310e/X312	Confidential	5-1
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### 5-2 DLP Composer Lite Setup Procedure

- 1. Choose "DLP Composer Lite V11.2 Setup" Program.
- 2. Click "Next".

- 3. Read "License Agreement".
  - Choose "I accept and agree to be bound by all the terms and conditions of this License Agreement".
  - Click "Next".
- 4. Click "Next".

DLP Composer L
🖞 DLP Composer(TM) Lite 11.2 Setup
Resuming the DLP composer(TM) Lite 11.2 Install Are you ready to have the Installation Wizard continue the installation?
Next > Cancel
(\$ DLP Composer(TM) Life Setup
License Agreement
You must agree with the license agreement below to proceed.
Agreement for which the licenses or government approvals are required.
11.6 <u>Entire Agreement</u> . The terms and conditions of this Agreement merge and supersede all prior and contemporaneous agreements, understandings, negotiations and discussions concerning the subject matter hereof. No amendments or modifications to this Agreement hall be effective unless in writing, and signed by the authorized representatives of both parties. These terms and conditions will preval notwithstanding any different, conflicting or additional terms and continuon the trans supers on any purchase order, achowoledgement or other writing not expressly incorporated into this Agreement. Licensee hereby warrants and represents that all authorizations and other apphicable consents required empowering you to enter into this Agreement have been obtained.
© I accept and agree to be bound by all the terms and conditions of this License Agreement. © I do not accept the terms and conditions of this License Agreement.
Next > Cancel
I <sup>®</sup> DLP Composer(TM) Lite 11.2 Setup
The following information describes this installation.

DLP Composer™ Lite Release	11.2	^
Installation Location		
The default installation directory is:		
C:\Program Files\DLP Compo	oser Lite 11.2	
To install in a different directory, click th Features page.	e Browse button on the Select	
Drivers Included		

5. Click "Next".

6. Click "Next".

7. The program is executing "installing" status.

8. Click "Finish".

🛃 DLP Composer(TM) Lite	11.2 Setun			
Select Features	Ultra starage			
Please select which features	you would like t	o install.		
DLP Composer Lik	e Tool Suite	This feature ( drive.	scription: er Lite Tool Suite will be installed on equires 53MB on	
Create desktop shortcut? Create start menu shortcuts?				
Current location: C:\Program Files\DLP Compose	r Lite 11.2\			Browse
<u>D</u> isk Cost	<u>R</u> eset	< <u>B</u> ack	<u>N</u> ext >	Cancel
👹 DLP Composer(TM) Lite	11.2 Setup			🛛
Ready to Install the Application Click Next to begin installation				<u>e</u>
Click the Back button to re the wizard.	enter the installa	tion information	or click Cancel to	o exit
are mean.				
		< <u>B</u> ack	Next >	Cancel
BLP Composer(TM) Lite	11.2 Setup			
😰 DLP Composer(TM) Lite Updating System				
		g installed.		
Updating System		) installed.		
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### 5-3 Get into Firmware Download Mode

- 1. Set-up
  - Hold on "Power" button and plug in the power cord .
  - After the power LED lighted blue,lamp and temp LED lighted red,then release "Power" button.(as right picture shows)
  - -Connect the projector with PC by USB cable.





### 5-3-1 USB Driver Upgrade Procedure

- 1.Execute"Install DLP Device Drivers" in start menu.
- 2.Select "Jungo WinDriver(WinXP), then click "install".
- Note: If OS is Windows XP, select "Jungo WinDriver (WinXP)"; If OS is Windows7, select Jungo WinDriver" Win 7)





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3.Click"Next".



4.Click"Finish".

### 5-3-2 Firmware Upgrade Procedure

1. Execute the "DLP Composer<sup>™</sup> Lite 11.2" file.





- 2. Setting "FlashDeviceParameters".
  - Select the file "11.2 FlashDeviceParameters".
  - Put "11.2 FlashDeviceParameters" file into the folder where you setup "DLP Composer Lite 11.2".

3. Click "Edit" and "Perferences".

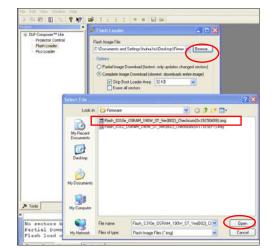
- 4. Click "Communications".
  - Select "USB"
  - Click "OK".

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Hart Laster Pro Loster Pro Loster Pro Loster	t/Speed
Tools	Instell/Uninstell Device Drivers.

- 5. Choose "Flash Loader".
  - Click "Browse" to search the firmware file (\*.img).
  - Click "Open".



Edit View Window Help	
6 🐏 💼   🖪   %;   💡 I Sject	*
DLP Composer?Lite	- Flash Loader
Projector Control	Flash Image File:
Flash Loader Pico Loader	C:\Documents and Settings\huhui.hu\Desktop\Flash, 🗸 Browse.
160 200001	Options
	O Partial Image Download (fastest: only updates changed sectors)
	<ul> <li>Complete Image Download (slowest: downloads entire image)</li> </ul>
	Skip Boot Loader Area: 32 KB
	Lrase all sectors
	O Sector Range Download
	Enter Sector Range of Image Data to be updated (in Hex)
	Start: 0x0 End: 0x0
	Start Download Reset Bus
	Status

RIP Company (18) Line (Flash Lawler)	
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And Calendary Strategies and Strate	

- 6. Selete the item skip Boot Loader Area
  - Select "32KB".
  - Click "Reset Bus" to erase the flash memory.

- 7. If the FW is ready, click "Start Download" to execute the firmware upgrade.
  - Click "Yes" to erase the flash memory.

- 8. It takes about several minutes, the firmware upgrade process is finished, "Download completed" will appear on the screen.
  - Unplug USB cable and power cord.
- 9. Check System FW version.
  - Re-plug in power cable, then restart the unit and get into the Service Mode to check the system firmware version.

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MCU Ver. N	
	106
Projection Hours	
Lamp Hours(Bright)	
Lamp Hours(Eco)	
Lamp Hours(Dynamic)	
Power On/Off	4/2
Waveform ID	77
Security Code	1234
Read SNID	07364055551
2X CW Index	288

Front Due

THE

# Section 2: MCU Firmware Upgrade Procedure

# **5-2-1 Equipment Needed**

#### Software :

- FLASHMAGIC\_6.72 (include these files: a.FlashMagic.exe b.Setup.exe)
- Program file (\*.hex)

#### Hardware :

- Projector
- Power Cord
- NXP MCU download tool (80.8TL07G001)
- PC or Laptop
- USB Cable mini USB to USB (A) (42.00284G001)











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# 5-2-2 Setup Procedure

# Install PL2303\_Prolific\_Driver

1. Double click "Setup.exe"

2. Click "Next".

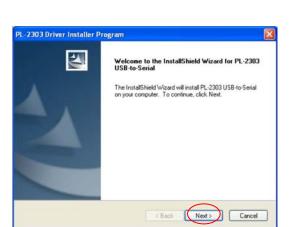
3. Click "Finish" to end PL2303\_Prolific\_Driver installed.

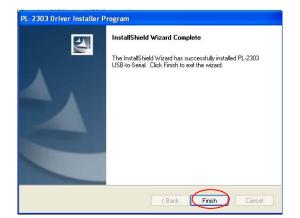


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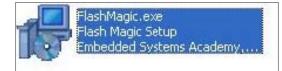
# Install FlashMagic

1. Double click "FlashMagic.exe"

3. Select "I accept the agreement",then click " Next".



Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation. FLASH MAGIC LICENSE EMBEDDED SYSTEMS ACADEMY, INC. You should carefully read the following terms and conditions before using this software. Unless you have a different license agreement signed by Embedded Systems Academy, Inc. ("ESA") your use, distribution, or installation of this copy of Flash Magic indicates your acceptance of this license. If you do not agree to any of the terms of this License, then do not install, distribute or use this copy of Flash Magic.	ense Agreement Please read the following important information	before continuing.
EMBEDDED SYSTEMS ACADEMY, INC. You should carefully read the following terms and conditions before using this software. Unless you have a different license agreement signed by Embedded Systems Academy, Inc. ("ESA") your use, distribution, or installation of this copy of Flash Magic indicates your acceptance of this license. If you do not agree to any of the terms of this License, then do not install, distribute		
software. Unless you have a different license agreement signed by Embedded Systems Academy, Inc. ("ESA") your use, distribution, or installation of this copy of Flash Magic indicates your acceptance of this license. If you do not agree to any of the terms of this License, then do not install, distribute		
	software. Unless you have a different license Systems Academy, Inc. ("ESA") your use, disti	agreement signed by Embedded ribution, or installation of this copy of
		icense, then do not install, distribute



e"

2. Click "Next".

4. Click "Next".

5. Click "Next".

6. Select "Create a desktop icon" and "Create a Quick Launch icon",then click "Next".

etup - Flash Magic	الے ا
Select Destination Location	
Where should Flash Magic be installed?	Č
Setup will install Flash Magic into the following	folder.
To continue, click Next. If you would like to select a diff	erent folder, click Browse.
C:\Program Files\Flash Magic	Browse
At least 16.4 MB of free disk space is required.	
edded Systems Academy, Inc	100
< Back	( Next > Cance

🕼 Setup - Flash Magic	
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Setup will create the program's shortcuts in the following Start Menu	folder.
To continue, click Next. If you would like to select a different folder, click Bro	wse.
Embedded Systems Academy, Inc.	Cancel

elect Additional Tasks Which additional tasks should be performed? Select the additional tasks you would like Setup to perform while installing Flash Mag then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon

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7. Select "Install".

eady to Install Setup is now ready to begin installin	g Flash Magic on your computer.
Click Install to continue with the inst change any settings.	allation, or click Back if you want to review or
Destination location: C:\Program Files\Flash Magic Start Menu folder: Flash Magic	1
Additional tasks: Additional icons: Create a desktop icon	
<u>&lt;</u>	2

8.Wait a moment,after installing successfully then click "Finish".



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# 5-2-3 Upgrade Procedure

1.Plug in the power cord, then connect the PC and MCU download tools by mini USB cable and insert the another side of MCU download tools into the projector (VGA-in).







- 3.Select "Device Manager",then select the "Ports(COM&LPT)",confirm the Prolific USB-to-Serial Comm Port.
- Computer Management
   Image: Computer Management

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   Image: Computer Management
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eneral Port Settings Diver Details		
Bits per second:	9600	~
Data bits:	8	*
Parity:	None	~
Stop bits:	1	~
Flow control:	None	*
Adv	vanced	Restore Default
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4.Right click the "Prolific USB-to-Serial Comm Port",select "Properties"-->"Port Setting",then select the Bits per second:9600,click "OK".

5.Select "Flash Magic".



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6.Choose "ARM Cortex" ,select "LPC113/303"

7.Select the COM Port which is same as Prolific USB-to-Serial Comm Port.

- 8.Program settings.
  Select Baud Rate:9600
  Select Interface:None(ISP)
  input the "12.000000"under the Oscillator(MHZ)
  Select"Erase blocks used by Hex File
  Select"Verify after programming".

Trash magic - Non PRODUCTION US	
File ISP Options Tools Help	
Step 1 - Communications	Step 2 - Erase
Select LPC1113/303	Erase block 0 (0x000000-0x000FFF) Erase block 1 (0x001000-0x001FFF)
COM Port COM 7	Erase block 2 (0x002000-0x002FFF)
Baud Rate: 9600	Erase block 3 (0x003000-0x003FFF)
Interface: None (ISP)	
Oscillator (MHz): 2.0000	LIART bootsader     Tash bark     Revis 0.2978 (3-00005755) Barb seminor
UPC1110     UPC1110     UPC1111.002	FAM block:: 0x1000000 - 0x10001FFF Signature: 196656 (0x0000000)
Step 3 - Hex File	LIAIT bookade     Taka back     Back 0.248 B.0x0009FFF] Flash removy     RiAM block: 0.4000009FFF] Flash removy     RiAM block: 0.40000009FFF     Signahier 196569 [IAC000000]     Pachie reasel value: 0.407     Code FlasH Protection Incodent     A000003FC     High speed communication inponded
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Select LPC1113/303	Erase block 0 (0x000000-0x000FFF)
COM Port: COM 7	Erase block 0 (0x000000-0x000FFF) Erase block 1 (0x001000-0x001FFF) Erase block 2 (0x002000-0x002FFF)
	Erase block 0 (0x000000-0x000FFF)

Erase all Flash+Code Rd Prot Erase blocks used by Hex File

more info Step 5 - Startl

0

Start

Hex File: C:\Documents and Settings\huhui.hu\Desktop\PT-TW/331R\MCU\_ Browse

Oscillator (MHz): 12.000000 p 3 - Hex File

Modified: Unknown

www.esacademy.com/software/flashmagic

Visit the "Flash Magic" home page for info on the latest revision

Verify after programming Fill unused Flash

NON PRODUCTION LISE ONLY

9. Click Browse and select the MCU file where you put the file in,

10.Click "Start".

11.When MCU upgrade process is finished, "Finished" will be shown.

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File ISP Options		ION OSE ONE I	-	
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Step 1 · Communica			2 - Erase	
Select LPC11		Erase	block 0 (0x000000-0x000FFF) block 1 (0x001000-0x001FFF)	^
COM Port COM 7	?	Erase	block 2 (0x002000-0x002FFF) block 3 (0x003000-0x003FFF)	=
Baud Rate: 9600		Erase	block 4 (0x004000-0x004FFF) block 5 (0x005000-0x005FFF)	~
Interface: None		Era	se all Flash+Code Rd Prot	W316/S315/X
Oscillator (MHz): 1	12.000000	Era	se blocks used by Hex File	
Step 3 - Hex File		_		
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	MCU_Ver(M0	6)_CRC(0x61D568	CE).hex	
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Step 1 - Commu	unications		Step 2 - Erase	
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COM Port:	DM 10	~	Erase block 1 (0x00100 Erase block 2 (0x00200	0-0x001FFF] 0-0x002FFF]
Baud Rate: 96	500	~	Erase block 3 (0x00300 Erase block 4 (0x00400	
Interface: N	1222	×	Erase block 5 (0x00500	0-0x005FFF1
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Step 3 - Hex Fi	e			
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Gen block ch	necksums			
Execute				
Visit the "Flash	Magic" home pa	ge for info on th	e latest revision	
www.esacadem	ny.com/software/	'flashmagic		•
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File ISP C	Options Tools Help			
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Step 1 - Cor	nmunications	Step 2 - Erase		
Select	LPC1113/303		0x000000-0x000FFI	
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Baud Rate:	9600 🗸		0x003000-0x003FFI 0x004000-0x004FFI	
Interface:	None (ISP)	Erase block 5 (	0x005000-0x005FFI	
Oscillator (M	(Hz): 12.000000		sh+Code Rd Prot s used by Hex File	
	NDocuments and Settings\huhui.hu odified: Wednesday, October 8, 201		eVMCU_Ver( B	rowse
Step 4 - Opt	ions	Step 5	5 - Start!	
Fill unuser	r programming d Flash < checksums		Start	
Technical or	n-line articles about 8051 and XA pro	gramming		
www.esacar	demy.com/fag/docs			
Finished	Convide docs		2	

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- 12. Check MCU firmware version.
  - Re-plug in power cord and Power on the projector. Get into the service mode (Power--Up--Right--Up--Left--Menu) to check the MCU firmware version.

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MCU Ver.	MOD
Projection Hours	4:00
Lamp Hours(Bright)	
Lamp Hours(Eco)	
Lamp Hours(Dynamic)	0.00
Power On/Off	4/2
Waveform ID	77
Security Code	1234
Read SNID	07364055551
2X CW Index	288

# **EDID Upgrade**

# 6-1 EDID Introduction

Extended Display Identification Data is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the monitor name and serial number.

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the monitor and system can work together.

- Note: If a display device has digital input ports, like DVI or HDMI, but without EDID in its Main Board, the display device will show no image while the input source is digital signal.
  - The EDID Upgrade procedure for S310e is the same as X312, we take S310e for example here.

# 6-2 Equipment Needed

#### Software

- EDID Program (All models\_EDID Tool\_Ver.0.81)
- EDID File (\*.ini)

#### Hardware

- Projector
- Power Cord for Projector (42.53506G002)
- VGA Cable (42.87305G102)
- HDMI(M) to DVI(F) cable (42.00256G001)
- Generic Fixture (80.00001.001) for EDID Key-in (Fixture: JP3 must be closed)
- RS-232 9 Pin Cable (pin to pin, F-M) (42.83C07G001)
- Power Adapter (Output DC 12V)
- Monitor
- PC



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# 6-3 Setup Procedure (VGA)

- 1. Connect all ports
  - Connect P1 of fixture with COM Port of PC/Laptop by RS232 Cable.
  - (2) Connect P2 of fixture with VGA Port of projector by VGA Cable.
  - (3) Plug Power Adapter to JP1 of fixture.
  - (4) Hold on "power" button and plug in the power cord, release the "power" button until all LEDs solid on.(as right picture shows).





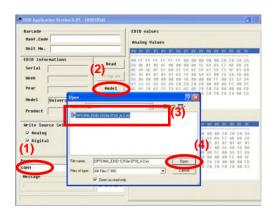
# 6-4 EDID Key-In Procedure

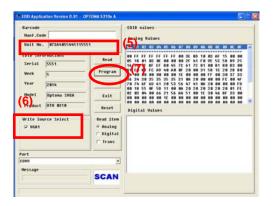
- 1. Execute EDID Program
  - Click "EDID" to execute EDID program.

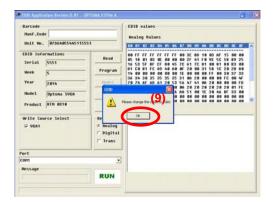


- 2. Process
  - (1) Select the COM Port which you are using.
  - (2) Click "Model".
  - (3) Select the source file (\*.ini).
  - (4) Click "Open".
  - (5) Key in the Serial Number into the Barcode blank space.
  - (6) In "Write Source Select" item,select "VGA1"
  - (7) Click "Program".

(8)Click "OK".





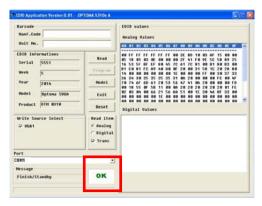


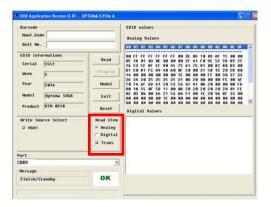
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3. When the EDID program is completed, a message "OK" will appear on the screen.

- 4. Read EDID "VGA" information
  - In the Read item, select "Analog" and "Trans", then click "Read" button.

- 5. EDID "VGA" information
  - EDID informations will show the result.





Barcode Hanf .Code		EDID values Analog Values
Unit He. EDID Informations Serial 5551	Read	00 01 02 03 04 05 06 07 00 07 08 07 08 08 06 06 07 00 FF FF FF FF FF FF 00 3E 00 10 03 AF 15 00 00 05 18 01 03 06 00 00 00 2F 41 F0 95 55 58 89 25
Week 5	Program	16 53 5F 0F EF 00 45 7C 61 7C 01 00 01 00 03 00 01 C0 01 FC 09 40 00 720 00 31 50 1C 20 00 14 00 00 00 00 00 00 1E 00 00 00 FC 00 20 37 33 36 34 30 35 35 35 35 31 00 20 00 00 00 0F C 00 4F
Year 2014 Hodel Optoma SUGA	Hodel Exit	70 74 47 40 41 20 53 56 47 41 00 20 00 00 00 FD 00 10 55 07 50 11 00 00 20 20 20 20 20 20 01 FC 02 03 00 00 00 60 156 40 51 00 15 30 46 8F 33 00 00 00 00 00 00 15 00 00 00 00 00 00 00 00 00
Product OTH 8318	Reset	lon na
Write Source Select	Read item	
9 0001	<pre>@ Analog</pre>	
fort		
0001		
Hessage		
Finish/Standby	OK	

#### 6-5 Setup Procedure (HDMI)(Only for X312)

- 1. Connect all ports
  - Connect P1 of fixture with COM Port of PC/Laptop by RS232 Cable.
  - (2) Connect P2 of the fixture with HDMI(M) to DVI(F)Adapter by DVI Cable.
  - (3) Plug Power Adapter to JP1 of fixture.
  - (4)Connect HDMI to DVI cable to the projector.
  - (5) Hold on "power" button and plug in the power cord, release the "power" button until all LEDs solid on.(as right picture shows).

#### 6-6 EDID Key-In Procedure

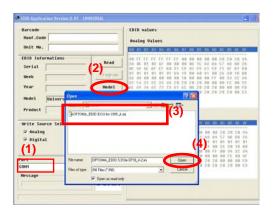
- 1. Execute EDID Program
  - Click "EDID" to execute EDID program.

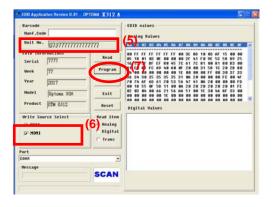


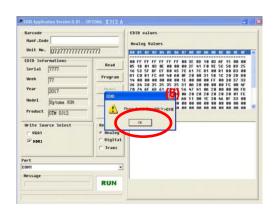




- 2. Process
  - (1) Select the COM Port which you are using.
  - (2) Click "Model".
  - (3) Select the source file (\*.ini).
  - (4) Click "Open".
  - (5) Key in the Serial Number into the Barcode blank space.
  - (6) In "Write Source Select" item,select "HDMI".
  - (7) Click "Program".
  - (8)Click "OK".







- 3. When the EDID program is completed, a message "OK" will appear on the screen.
- A X312 Barcode Hanf.Code EDID values Analog Values 88 81 62 63 84 65 64 87 88 89 84 68 86 60 68 68 Unit He. EDID Information Read Serial Week Year Hode1 Hodel Optoma XGA Exit Product OTM 0312 Reset Digital Values Read iter Write Source Selec 10 11 82 10 01 15 06 87 08 99 18 08 F UCA1 Analog Digital Trans Port COH1 Finish/Standby ок

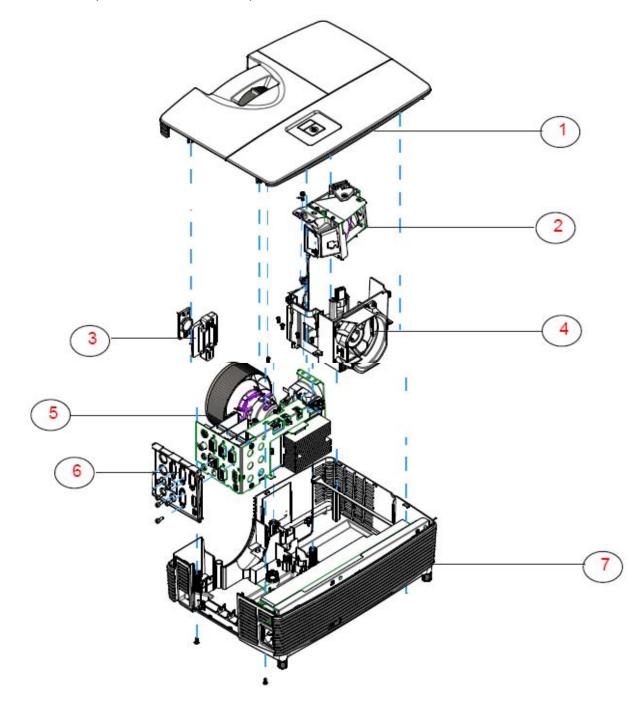
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Model Optoma XGA	Exit																
Product OTH 0312	Reset	D1q1			1												
Write Source Select Read item		DD 11				<b>Q</b> 5	96	<b>q</b> 7	38	62	<b>q</b> 1	QE	qD.	qD	QE.	1F	
P HORD	← Analog © Digital Ø Trans	DD FF		н3	-	нн	HH	нн	11	70	BI	**	22	-	HI: 83		
vert		36 90 14 : 0 70 14		3	31	44 311 24	311	31	14 48 47	28	Hł	FF HF 26	HH		87 нн аа	11	
com Nessage			12	HI Ft	SI UT	11	HH	HR	14	2H 67	24	24	28	28	HI 16	42 1F	
Finish/Standby	OK	DD 15															=

- 4. Read EDID "HDMI" information
  - In the Read item, select "Digital" and "Trans", then click "Read" button.

- 5. EDID "HDMI" information
  - EDID informations will show the result.

## Appendix A (Exploded Image)

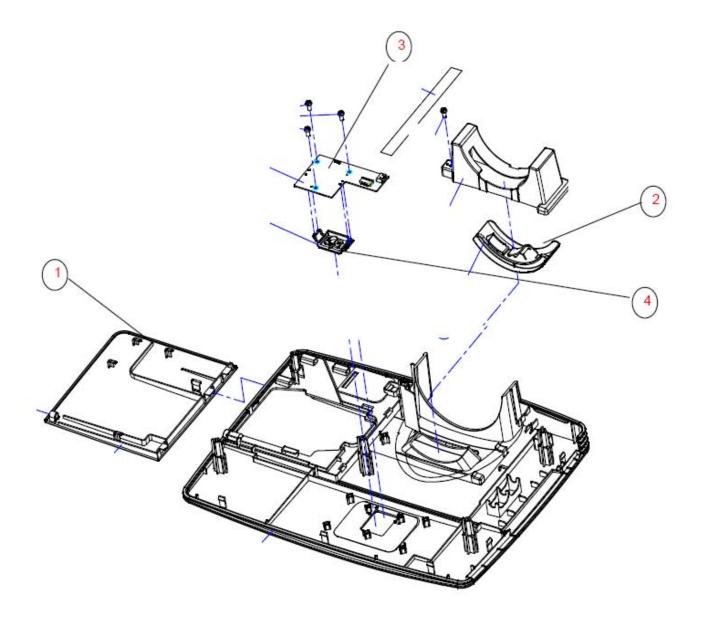
Note: This chapter is only designed to show the exploded image of the projector. For updated part numbers, please refer to RSPL report.



S310e/X312	1

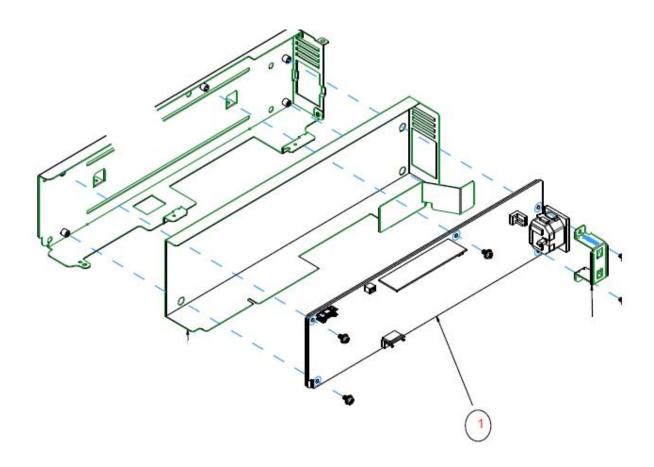
Item	Description	Parts Supply
1	ASSY TOP COVER 8 KEY	V
2	LAMP MODULE	V
3	SPEAKER	V
4	AXIAL FAN	V
5	FOCUS RING	
6	ASSY IO COVER BLACK MODULE FOR 736(SERV-ICE)	V
7	BOTTOM COVER	V

#### ASSY TOP COVER MODULE



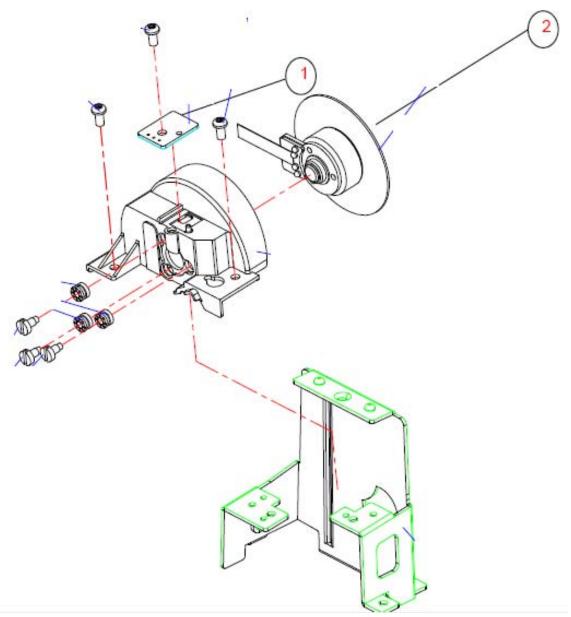
Item	Description	Parts Supply
1	LAMP COVER	V
2	ZOOM RING	
3	KEYPAD BOARD	V
4	KEYPAD	

#### ASSY LVPS



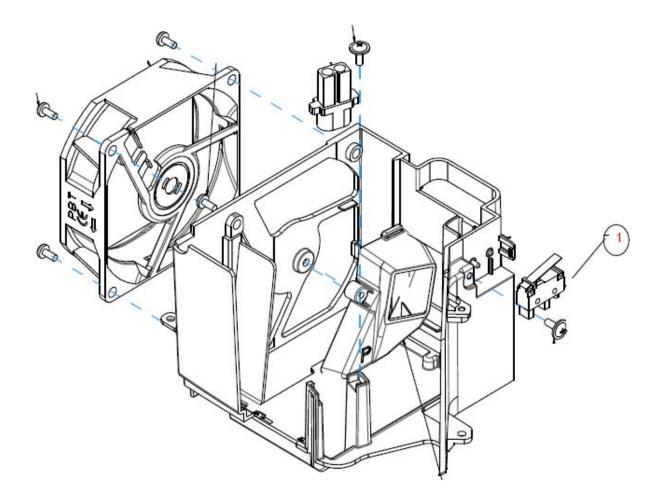
Item	Description	Parts Supply
1	POWER SUPPLY	V

#### ASSY COLOR WHEEL MODULE



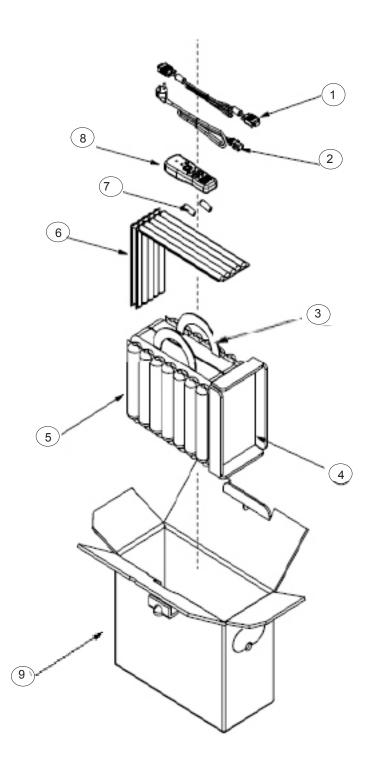
Item	Description	Parts Supply
1	PHOTO SENSOR BOARD	V
2	COLOR WHEEL MODULE	V

### **ASSY INTERLOCK SWITCH**



Item	Description	Parts Supply
1	INTERLOCK SWITCH	V

AK



S310e/X312 VIII

Item	Description	Parts Supply
1	CABLE VGA	V
2	CABLE POWER CORD	V
3	CARRY BAG FOR OPTOMA	V
4	PARTITION PAPER FOR AIRBAG	
5	PACKING AIRBAG INSIDE	
6	PACKING AIR BAG WITHOUT	
7	BATTERY	
8	INFRARED REMOTE CONTROL	V
9	OUTSIDE CARTON	V

# **Appendix B**

### I. Serial Number System Definition

Serial Number Format for Projector (take W301 as example)

<u>Q</u>	<u>736</u>	<u>4</u>	<u>15 AAAAA C 0001</u>
1	2	) (3	4     5     6     7
	1	:	Q = Optoma
	2	:	736= Project Code (S310e)
	3	:	4= Last number of the manufacture year (ex:201 <u>4</u> = 4)
	4	:	15 = week of the manufacture year (ex:the fifteenth week of the year = 15)
	5	:	AAAAA = not-defined
	6	:	C = Manufacture factory (CPC)
	7	:	0001 = Serial Code

EX: Q736415AAAAAC0001

This label "Q736415AAAAAC0001" represents the serial number for S310e. It is produced at CPC on fifteenth of 2014. Its serial code is 0001.

#### **II. PCBA Code Definition**

