

Product Information

Issue Date: December 11, 2007

Model: SLK-153A11

Note: The product and specification are subject to change without prior notice. Please contact your sales representative for the most current specifications.

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This monitor has been engineered and manufactured to assure your safety, and serious Electrical shock and other hazards can be prevented by observing the following precautions.

General safety precautions

1. Do not place heavy, wet, or magnetic material on the monitor or the power cord. Never cover the ventilation openings with any material and never insert metal objects into the vent holes
2. Avoid operating the monitor in very hot, very humid, or very dusty places.
Temperature: 0~40°C
Humidity: 20~85% Relative Humidity
3. Make sure that the power cord and other cords are securely connected.
4. Overloaded AC outlets and extension cords are dangerous. Frayed power cords and broken plugs are also dangerous. They may result in a shock or fire hazard. Call your service technician for replacement.
5. Do not use sharp tools like a pin or pencil on the LCD surface. Scratching may result.
6. Do not use solvents such as benzene to clean the monitor. It will damage the LCD Surface.

Maintenance

Do not remove the monitor cover. There are no user serviceable components inside. There are dangerous voltages inside, even when power is off. If the display monitor does not operate properly, remove the power cord from the wall outlet, and contact your dealer. Careless use and/or poor maintenance can cause serious problems.

This document provides technical data and theory of operation to aid in the repair of the SL153-0607, which is a 15.3' Ultra-wide TFT- LCD module.

All components in the manufacture of LCD Monitor are RoHS Directive compliant.

1. INSIDE SPECIFICATION

1-1. LCD PANEL

1) Features

- High contrast ratio, High aperture structure
- Wide viewing angle
- High speed response
- Active display area with **1280 x 336** resolution
- Low power consumption
- LVDS(Low Voltage Differential Signaling) interface (1pixel/clock)
- COMPACT SIZE DESIGN

2) General information

- **Display color:** 16.7M colors
- **Number of pixels:** 1280 x RGB x 336
- **Active Display Area :** 376mm(H) x 100 mm(V)
- **Pixel arrangement :** RGB vertical strips
- **Pixel pitch :** 0.294mm(H) RGB x 0.294mm(V)
- **Display mode :** Normally Black
- **temperature :** Storage (-20 ~ 50°C), Operating (0 ~ 50°C)
- **Contrast Ratio :** 1,000:1
- **Response Time :** Tg-14msec (Typ.)
- **Luminance of White :** 300cd/m² (center 1 point)
- **Viewing Angle :** Hor L(178°) R(178°)
Ver H(178°) L(178°)

1-2. TOUCH SCREEN & CONTROLLER

- 1) Maker : OPTION
- 2) Touch screen : OPTION
- 3) Controller : OPTION

1-3. MAIN BOARD

- 1) Model Name : GRIFFIN
- 2) Scaler Maker : Mstar
- 4) Signal Input : RGB Analog (15Pin D-sub)
- 5) Support Voltage : DC 12V

2. MODEL SPECIFICATION

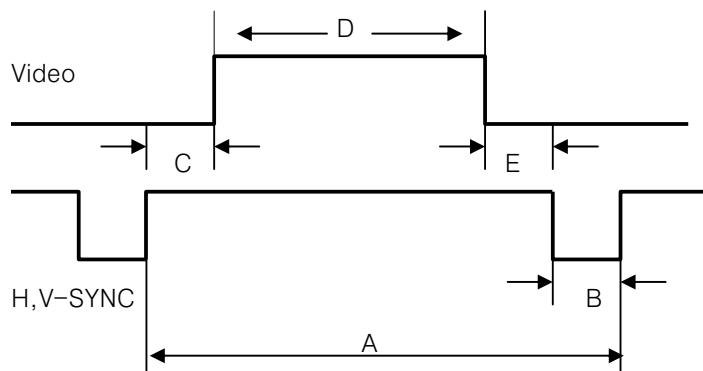
2-1. SYNC

- 1) H-Frequency : Timing chart reference
- 2) V-Frequency : Timing chart reference

3. SUPPORTED VIDEO TIMING

The microprocessor measures the H-sync, V-sync and V-sync/H-sync polarity for RGB inputs, and uses this timing information to control all of the display operation to get the proper image on a screen. This board can detect all VESA standard Graphic modes shown on the table below and provide more clear and stable image on a screen.

Timing Description



FH : H-Frequency

A : Total time

B : Sync time

C : Back porch

D : Active Area

E : Front Porch

Description		720x400@70	640x480@60	640x480@72	640x480@75	800x600@60
Horizontal	FH	31.469KHZ	31.469KHZ	37.861KHZ	37.5KHZ	37.879KHZ
	A	31.777us	31.778us	26.413us	26.667us	26.4us
	B	3.8130us	3.813us	1.270us	2.032us	32.00us
	C	1.977us	1.589us	3.810us	3.810us	2.200us
	D	25.422us	25.422us	20.317us	20.317us	20.00us
	E	0.636us	0.318us	0.508us	0.508us	1.00us
	POL	Negative	Negative	Negative	Negative	Negative
Vertical	VH	70.087HZ	59.949HZ	72.809HZ	75.0HZ	60.317HZ
	A	14.268ms	16.683ms	13.735ms	13.333ms	16.579ms
	B	0.064ms	0.064ms	0.079ms	0.080ms	0.106ms
	C	1.080ms	0.794ms	0.528ms	0.427ms	0.607ms
	D	12.711ms	15.253ms	12.678ms	12.80ms	15.840ms
	E	0.413ms	0.064ms	0.026ms	0.027ms	0.026ms
	POL	Positive	Negative	Negative	Negative	Positive

Description		800x600@72	800x600@75	1024x768@70	1280x1024@60	1366x768@60
Horizontal	FH	48.077KHZ	46.875KHZ	48.363KHZ	49.012KHZ	56.476KHZ
	A	20.800us	21.333us	20.677us	20.403us	17.707us
	B	2.400us	1.616us	2.092us	0.550us	1.813us
	C	1.280us	3.232us	2.462us	2.820us	1.920us
	D	16.00us	16.162us	15.754us	15.658us	13.653us
	E	1.120us	0.323us	0.369us	1.375us	0.321us
	POL	Positive	Positive	Negative	Negative	Negative
Vertical	VH	72.188HZ	75.00HZ	60.004HZ	59.99HZ	70.069HZ
	A	13.853ms	13.333ms	16.666ms	16.669ms	14.272ms
	B	0.125ms	0.064ms	0.124ms	0.102ms	0.106ms
	C	0.478ms	0.448ms	0.600ms	0.8970ms	0.513ms
	D	12.480ms	12.80ms	15.880ms	15.670ms	13.599ms
	E	0.770ms	0.021ms	0.062ms	0.000ms	0.054ms
	POL	Positive	Positive	Negative	Negative	Negative

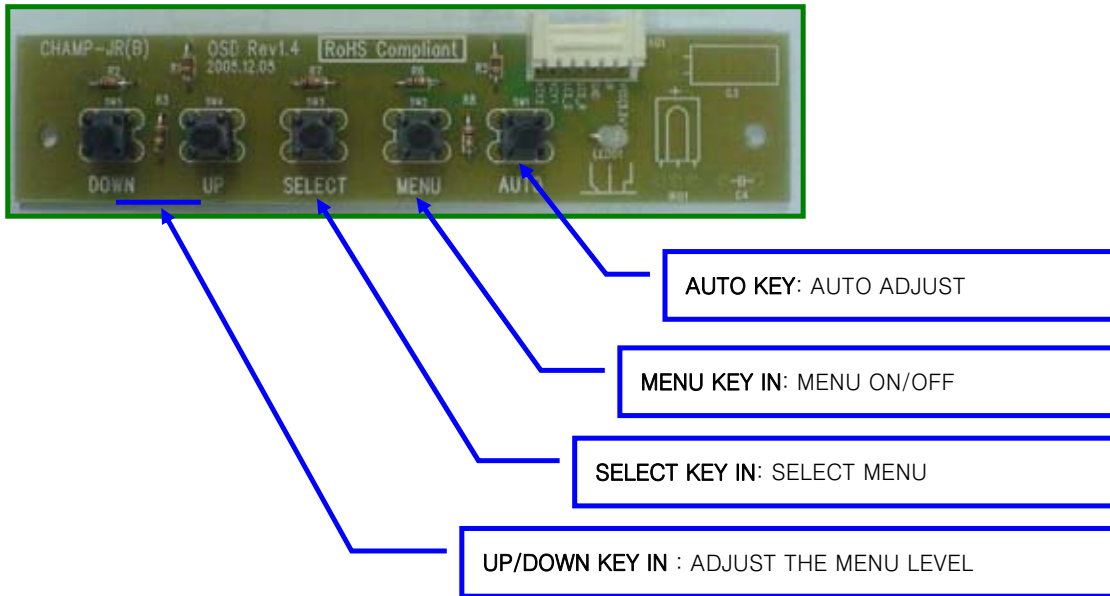
The monitor is compatible with additional modes within the one of following specified frequency ranges provided that they are different at least for one of the following:

Horizontal frequency: +/- 1 KHz

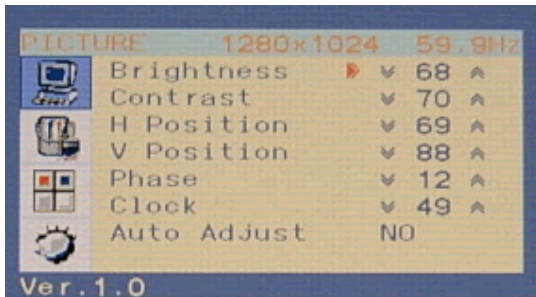


Vertical frequency: +/- 1Hz

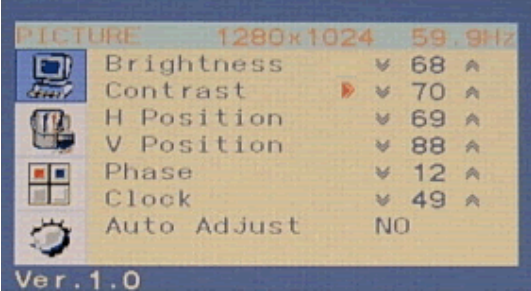


4. OSD(On Screen Display)

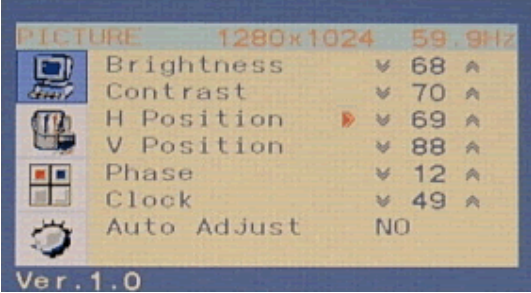


4-1. OSD(On Screen Display) Control Button

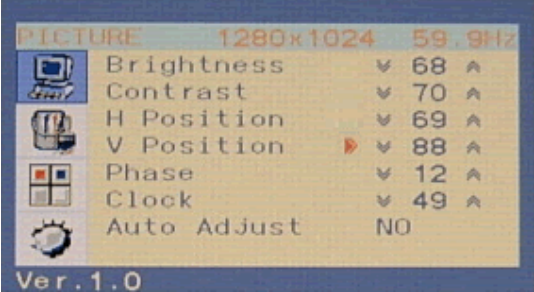




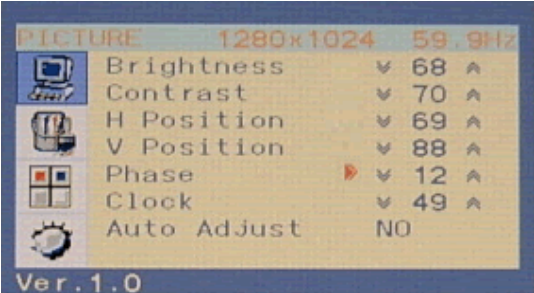


4-2. OSD(On Screen Display) Control

P I C T U R E	<p>Brightness</p> 	<p>PROCEDURE</p> <ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the Picture. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the Brightness . (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the brightness of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>▼ Dark</p>  </div> <div style="text-align: center;"> <p>▲ Bright</p>  </div> </div>
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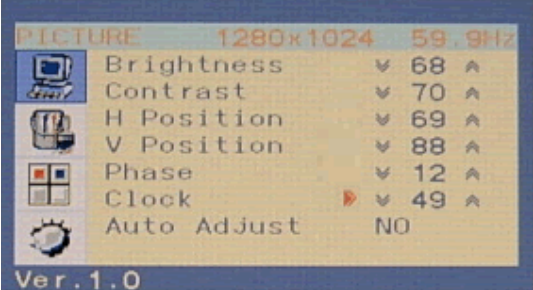
P I C T U R E	Contrast		PROCEDURE
	<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the Picture. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the Contrast . (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the contrast of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing. 		
		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>▼ Distinct</p>  </div> <div style="text-align: center;"> <p>▲ Vague</p>  </div> </div>	

P I C T U R E	H Position		PROCEDURE
	<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the Picture. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the H Position. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the H position of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing. 		
		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>▼</p>  </div> <div style="text-align: center;"> <p>▲</p>  </div> </div>	

P I C T U R E	V Position	
		
	PROCEDURE	
	<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the Picture. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the V Position. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the V position of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing. 	
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">▼</div> <div style="text-align: center;">▲</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	

P I C T U R E	Phase	
		
	PROCEDURE	
	<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the Picture. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the Phase. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the phase of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing. 	
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">▼ Mismatch</div> <div style="text-align: center;">▲ Match</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	

Clock




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PROCEDURE

- ① Press the MENU button.
- ② Press the UP or DOWN button.
- ③ Select the Picture.
(Press the SELECT button)
Result: The Red cursor is displayed.
- ④ Press the UP or DOWN button.
- ⑤ Select the Clock.
(Press the SELECT button)
- ⑥ Press the UP or DOWN button.
Result: Adjust the clock of the screen.
- ⑦ Press the MENU button repeatedly to return to normal viewing.

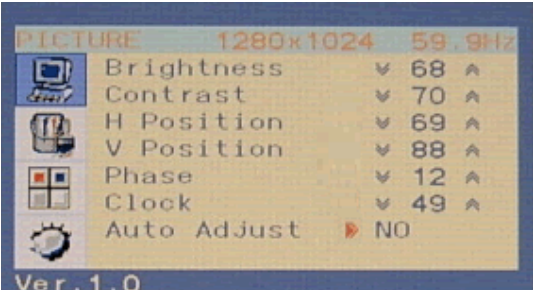
▼ Mismatch



▲ Match

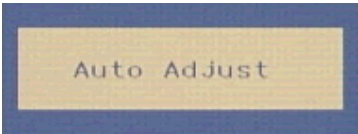


Auto Adjust



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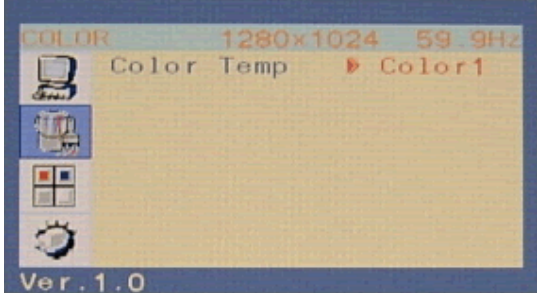
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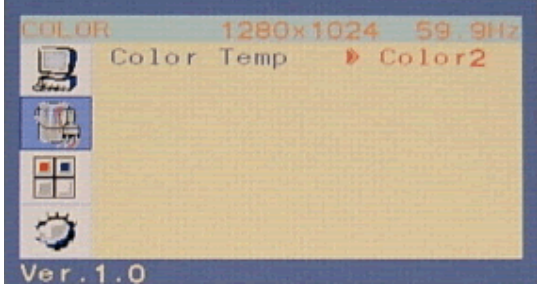


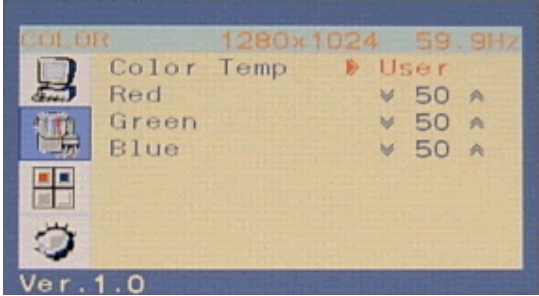
PROCEDURE

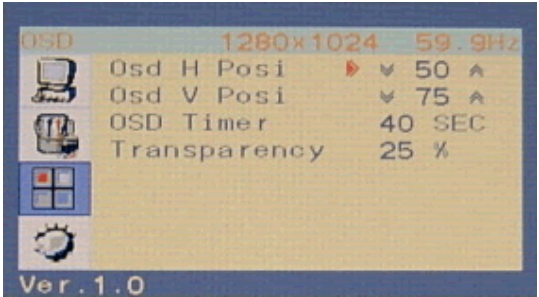
- ① Press the MENU button.
- ② Press the UP or DOWN button.
- ③ Select the Picture.
(Press the SELECT button)
Result: The Red cursor is displayed.
- ④ Press the UP or DOWN button.
- ⑤ Select the Auto Adjust .
(Press the SELECT button)
- ⑥ Select the "YES" .
(Press the UP or DOWN button.)
- ⑦ Press the SELECT button.
Result: Adjust Automatically the Vertical and Horizontal size.

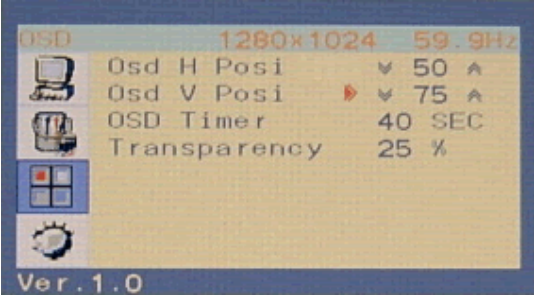
※ Same as AUTO key.

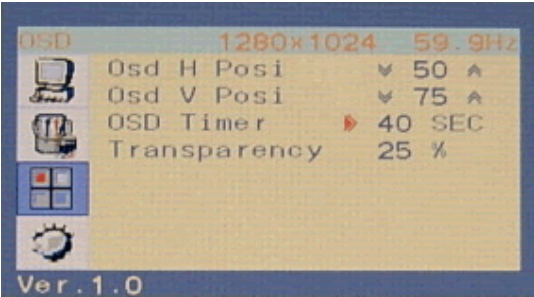
C O L O R	Color 1		<p><u>PROCEDURE</u></p> <ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the color. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Select the Color 1(9300K). (Press the SELECT button) ⑤ Press the MENU button repeatedly to return to normal viewing.
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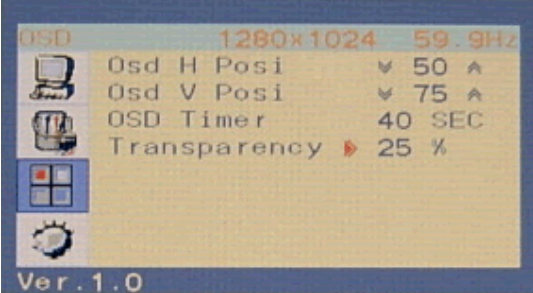
C O L O R	Color 2		<p><u>PROCEDURE</u></p> <ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the color. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Select the Color 2(6500K). (Press the SELECT button) ⑤ Press the MENU button repeatedly to return to normal viewing.
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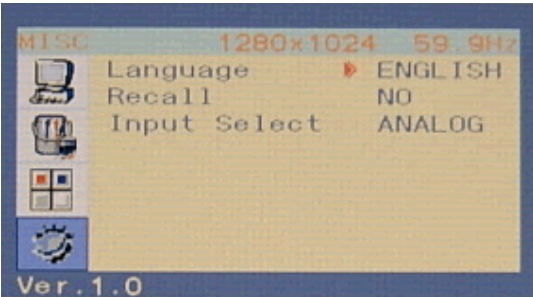
C O L O R	User		<u>PROCEDURE</u>
			<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the color. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Select the User Mode. (Press the SELECT button) <u>Result:</u> The user menu is displayed. ⑤ Press the UP or DOWN button. ⑥ Select the Red, Green, or Blue. (Press the SELECT button) ⑦ Press the UP or DOWN button. <u>Result:</u> Adjust the R/G/B of the Screen. ⑧ Press the MENU button repeatedly to return to normal viewing.

O S D	OSD H Posi		<u>PROCEDURE</u>
			<ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the OSD. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the OSD H Posi. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the OSD H Position of the Screen. ⑦ Press the MENU button repeatedly to return to normal viewing.

<div data-bbox="272 325 406 357" style="border: 1px solid black; padding: 2px;">OSD V Posi</div> <div data-bbox="272 378 803 672" style="border: 1px solid black; padding: 5px;">  <p>The screenshot shows the OSD menu with 'Osd V Posi' selected. The menu items are: Osd H Posi (50), Osd V Posi (75), OSD Timer (40 SEC), and Transparency (25 %). The screen resolution is 1280x1024 and the refresh rate is 59.9Hz. The version is Ver. 1.0.</p> </div>	<div data-bbox="824 310 971 340" style="border-bottom: 1px solid black; padding-bottom: 2px;">PROCEDURE</div> <ol style="list-style-type: none"> ⑦ Press the MENU button. ② Press the UP or DOWN button. ③ Select the OSD. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the OSD V Posi. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the OSD V Position of the Screen. ⑦ Press the MENU button repeatedly to return to normal viewing.
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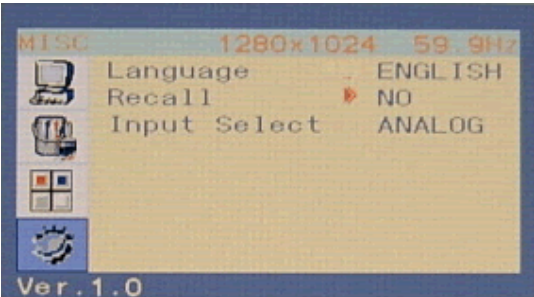
<div data-bbox="272 1081 397 1113" style="border: 1px solid black; padding: 2px;">OSD Timer</div> <div data-bbox="272 1134 803 1428" style="border: 1px solid black; padding: 5px;">  <p>The screenshot shows the OSD menu with 'OSD Timer' selected. The menu items are: Osd H Posi (50), Osd V Posi (75), OSD Timer (40 SEC), and Transparency (25 %). The screen resolution is 1280x1024 and the refresh rate is 59.9Hz. The version is Ver. 1.0.</p> </div>	<div data-bbox="824 1066 971 1096" style="border-bottom: 1px solid black; padding-bottom: 2px;">PROCEDURE</div> <ol style="list-style-type: none"> ⑧ Press the MENU button. ② Press the UP or DOWN button. ③ Select the OSD. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the OSD Timer. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the OSD time of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing.
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O S D	Transparency	 <p>OSD 1280x1024 59.9Hz Osd H Posi v 50 ^ Osd V Posi v 75 ^ OSD Timer 40 SEC Transparency ▶ 25 % Ver. 1.0</p>	<p><u>PROCEDURE</u></p> <ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the OSD. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the Transparency. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Adjust the OSD transparency of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing.
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M I S C	Language	 <p>MISC 1280x1024 59.9Hz Language ▶ ENGLISH Recall NO Input Select ANALOG Ver. 1.0</p>	<p><u>PROCEDURE</u></p> <ol style="list-style-type: none"> ① Press the MENU button. ② Press the UP or DOWN button. ③ Select the MISC. (Press the SELECT button) <u>Result:</u> The Red cursor is displayed. ④ Press the UP or DOWN button. ⑤ Select the Language. (Press the SELECT button) ⑥ Press the UP or DOWN button. <u>Result:</u> Select the OSD language of the screen. ⑦ Press the MENU button repeatedly to return to normal viewing.
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Recall



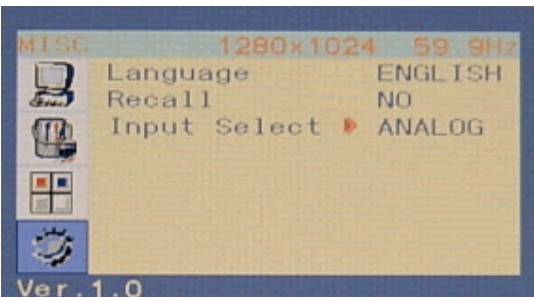
PROCEDURE

- ① Press the MENU button.
- ② Press the UP or DOWN button.
- ③ Select the MISC.
(Press the SELECT button)
Result: The Red cursor is displayed.
- ④ Press the UP or DOWN button.
- ⑤ Select the Recall.
(Press the SELECT button)
- ⑥ Select the "YES".
(Press the UP or DOWN button)
- ⑦ Press the SELECT button.

Result: After few seconds, Monitor will power off and then re-start with default data.

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Input Select



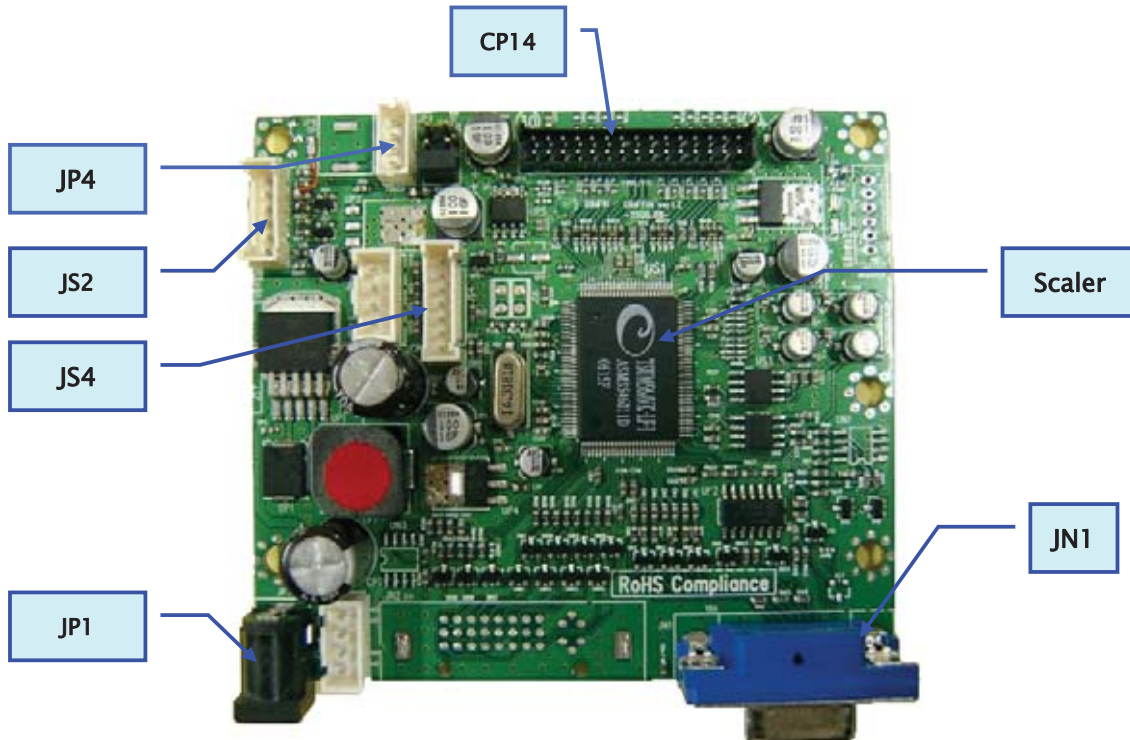
PROCEDURE

- ① Press the MENU button.
- ② Press the UP or DOWN button.
- ③ Select the MISC.
(Press the SELECT button)
Result: The Red cursor is displayed.
- ④ Press the UP or DOWN button.
- ⑤ Select the Input Select.
(Press the SELECT button)
- ⑥ Press the UP or DOWN button.
Result: Analog or Digital is selected.
- ⑦ Press the MENU button repeatedly to return to normal viewing.

5. PCB ASSEMBLY FUNCTIONAL DESCRIPTION

Display Conversion Main BOARD Assembly(GRIFFIN 1.2) Connector Locations:

5-1. AD BOARD



Reference	Description	Pin	Connector Type
CP14	I/F Connector	30	YDW200-30
JN1	D-SUB Jack	15	15P D-SUB 2.29MM RIGHT ANGLE
JP4	Sub Power Jack	4	MOLEX53015-04
JS4	OSD Control Connector	7	SMW200-07
JS2	Inverter Connector	6	SMW200-06
JP1	Power Connector		DC JACK

CP14: LVDS Connector :

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	GND	GROUND	16	LVE3-	CH3N_LV_O/TTL_G3
2	GND	GROUND	17	LVEC+	CLKP_LV_O/TTL_G4
3	LVO3+	CH3P_LV_E/TTL_R0	18	LVEC-	CLKN_LV_O/TTL_G5
4	LVO3-	CH3N_LV_E/TTL_R1	19	LVE2+	CH2P_LV_O/TTL_G6
5	LVOC+	CLKP_LV_E/TTL_R2	20	LVE2-	CH2N_LV_O/TTL_G7
6	LVOC-	CLKN_LV_E/TTL_R3	21	LVE1+	CH1P_LV_O/TTL_B0
7	LVO2+	CH2P_LV_E/TTL_R4	22	LVE1-	CH1N_LV_O/TTL_B1
8	LVO2-	CH2N_LV_E/TTL_R5	23	LVE0+	CH0P_LV_O/TTL_B2
9	LVO1+	CH1P_LV_E/TTL_R6	24	LVE0-	CH0N_LV_O/TTL_B3
10	LVO1-	CH1N_LV_E/TTL_R7	25	GND	GROUND
11	LVO0+	CH0P_LV_E/TTL_G0	26	GND	GROUND
12	LVO0-	CH0N_LV_E/TTL_G1	27	VLCD	VCC
13	GND	GROUND	28	VLCD	VCC
14	GND	GROUND	29	VLCD	VCC
15	LVE3+	CH3P_LV_O/TTL_G2	30	VLCD	VCC

JS4 : OSD Connector :

Pin No.	Symbol	Description
1	VCC (3.3V)	VCC
2	IR	REMOCON
3	GND	GROUND
4	LED_R	LED_RED
5	LED_G	LED_GREEN
6	KEY1	KEY1
7	KEY2	KEY2

JS2 : Inverter Connector :

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	VCC	12V	4	ADJ	ADJUST
2	VCC	12V	5	GND	GROUND
3	ON	ON/OFF	6	GND	GROUND

JN1 : D-SUB Connector :

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	RED	VGA-RED	9	NC	NC
2	GREEN	VGA-GREEN	10	GND	SYNC GROUND
3	BLUE	VGA-BLUE	11	GND	GROUND
4	GND	GROUND	12	DATA	DDC DATA
5	GND	DDC GROUND	13	SYNC	HORIZONTAL SYNC
6	GND	RED GROUND	14	SYNC	VERTICAL SYNC
7	GND	GREEN GROUND	15	CLK	DDC CLK
8	GND	BLUE GROUND			

JP4 : Sub Power :

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	GND	GROUND	3	VCC	+5V
2	VCC	+3.3V	4	VCC	+12V

JP1 : DC Connector :

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	VCC	12V	3	GND	GROUND
2	GND	GROUND			

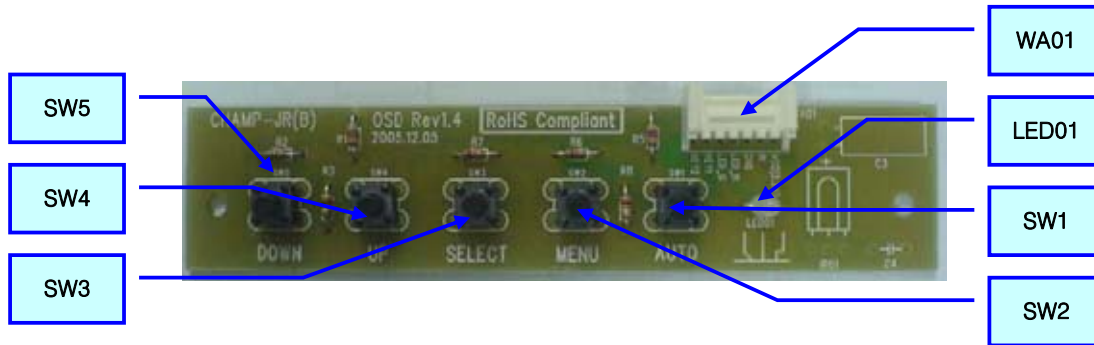
OPTION : DVI Connector :

Pin No.	Symbol	Pin No.	Symbol	Pin No.	Symbol	Pin No.	Symbol
1	T.M.D.S Data2-	9	T.M.D.S Data1-	17	T.M.D.S Data0-	C1	NC
2	T.M.D.S Data2+	10	T.M.D.S Data1+	18	T.M.D.S Data0+	C2	NC
3	T.M.D.S Data2/4 shield	11	T.M.D.S Data1/3 shield	19	T.M.D.S Data0/5 shield	C3	NC
4	T.M.D.S Data4-	12	T.M.D.S Data3-	20	T.M.D.S Data5-	C4	NC
5	T.M.D.S Data4+	13	T.M.D.S Data3+	21	T.M.D.S Data5+	C5	NC
6	DDC Clock	14	+5V	22	Clock Shield	14	NC
7	DDC Data	15	Hot Plug Detect	23	T.M.D.S Clock+	15	NC
8	Analog Vertical Sync	16	Hot Plug Detect	24	T.M.D.S Clock-	16	NC

5-2. Control Board

OSD Key Pad Control Board Assembly

The Control Board assembly is the OSD user control/interface.



Control PCB Connector and Switch Identification:

CONTROL BOARD : CHAMP-JR(B) OSD Rev1.4		
Reference	Description	Connector Type
SW1	SW-TACT	IT-1102AH-T
SW2	SW-TACT	IT-1102AH-T
SW3	SW-TACT	IT-1102AH-T
SW4	SW-TACT	IT-1102AH-T
SW5	SW-TACT	IT-1102AH-T
LED01	LED	SAM3271
WA01	WAFER	YEONHO SMW250-07(Locking Type)

6. LCD MONITOR BLOCK DIAGRAM

