

## OWNER'S MANUAL

# MONITOR SIGNAGE

Please read this manual carefully before operating your set and retain it for future reference.

### MONITOR SIGNAGE MODELS

M2901S M3801S



- Image sticking is a phenomenon that exhibits temporary retained image or permanent "ghost" image, due to the prolonged display of static images, which causes chemical or electrical damage on the display components.
- It is recommended to avoid displaying a fixed static image which is the most common cause of image sticking.
- When a displayed image is not required, it is recommended to display a Dynamic Image, or an Active moving Screen Saver.
- Typical Example of Image Sticking
- 1) For general usage, such as television broadcasting, image sticking can occur on channel numbers or logos displayed in a fixed position for long periods of time.
- 2) The displays used at airports and other public transportation stations for displaying customer information, tend to have the same image or similar contents. Image Sticking occurs when this type of format or content is used for a long period of time.
- 3) Letter box format is consistently used with DVD or VCR.
- 4) When OSD (On Screen Display) such as "Menu" is consistently present on the screen.
- To reduce image sticking or lower the possibility of the phenomena, either use image a sticking
  prevention functions inherent in the product such as Orbiter or White Wash, or use special
  application contents by the customer.
- Power down the product for a period of time that matches that which caused the issue.
- if image sticking occurred after 10 hours, power down the product for 30 minutes.
- if image sticking occurred after 20 hours, power down the product for 1 hour.
- This phenomenon is common to all manufactures and in consequence the manufactures warranty does not cover the product bearing this phenomenon.

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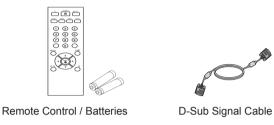
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# Accessories

## Accessories

Thank you for your purchase. Please check the product as well as the accessories shown below.

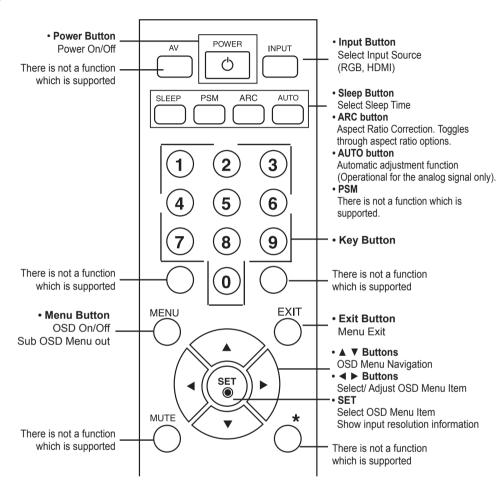
Note that the accessories may look different from those shown here.



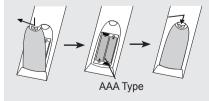


# Using the Remote Control

### Name of the Remote Control Buttons



## Inserting batteries into remote control.

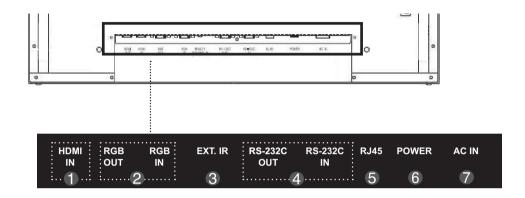


- 1. Open the battery compartment cover on the back side and install the batteries matching correct polarity (+ with +,- with -)
- Install two 1.5 V AAA batteries. Don't mix old or used batteries with new ones.
- 3. Close cover.
- To remove the batteries, perform the installation actions in reverse

# Name and Function of the Parts

\* The product image in the user's guide could be different from the actual image.

### Rear View



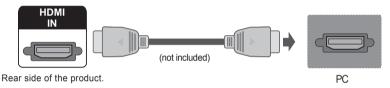
- **HDMI IN Ports:** HDMI signal to HDMI port with HDMI cable.
- RGB IN/OUT : RGB signal to RGB port with RGB cable.
- **EXT. IR**: External IR.
- RS-232C Serial IN/OUT Port : Connect to the RS-232C port on a PC. For control the another set, connect a RS-232C Cable from RS-232C out port to another set's RS-232C input port.
- **⑤** RJ45(eZ-NET) Port: Connect the LAN cable for eZ-NET Manager control.
- 6 Power Switch: AC Power On/Off Switch.
- **AC Power Connector :** Connect the power cord.

## When Connecting to your PC

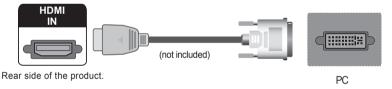
- First of all, see if the computer, product and the peripherals are turned off. Then, connect the signal input cable.
  - $\widehat{\mathsf{A}}$  When connecting with the D-Sub signal input cable.



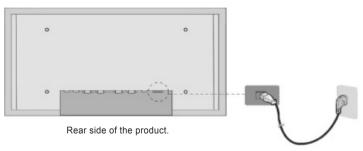
B When connecting with the HDMI signal input cable (not included).



(C) When connecting with the HDMI to DVI signal input cable (not included).



2 Connect the power cord.





 If HDMI signal of input device is abnormal, Something wrong phenomenon or no signal can happen on screen.

(1) Turn on power by pressing the power button on the product.



(2) Turn on the PC.

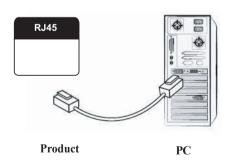
### To change input source

Press the SOURCE button on the remote control to select the input signal. Or, press the SOURCE button on the bottom of the product.

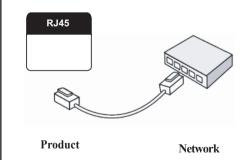


## When using the LAN

- Connect the LAN cable as shown in the below figure .
- A When connecting with a PC.



(B) When connecting with a Network.

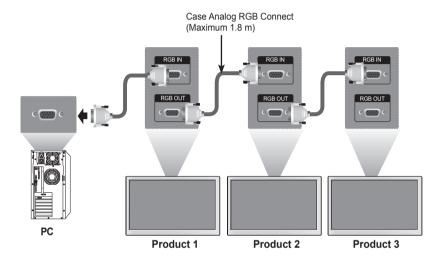


Connect the LAN cable and install the eZ-Net Manager program on the CD-ROM. For more information about the program, please refer to eZ-Net Guide in the enclosed CD-ROM.

## Daisy Chain Monitors

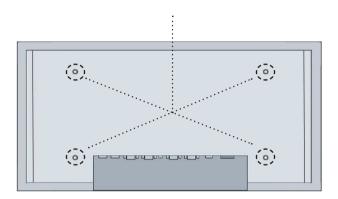
Use this function when displaying ANALOG RGB inputs of a PC to the other product.

To use different products connected to each other
 Connect one end of the signal input cable(15-pin D-Sub Signal Cable) to the RGB OUT connector of product 1 and connect the other RGB IN connector of other products.

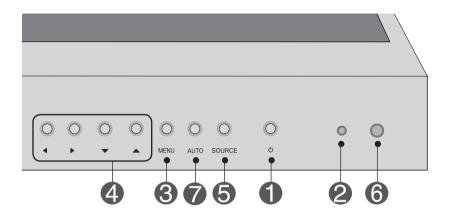


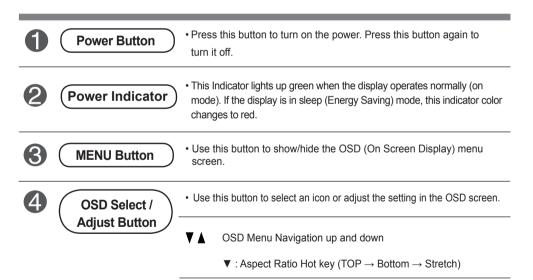
# VESA FDMI wall Mounting

This product supports a VESA FDMI compliant mounting interface. These mounts are Purchased separately and not available. Refer to the instructions included with the mount for more info



## Screen Adjustment options





✓ : Select Menu Item, Decrement Value➤ : Select Menu Item, Increment Value

## Screen Adjustment options



To change input source depending on connected signal.
 Press the SOURCE button on the remote control to select the input signal. Or, press the SOURCE button on the bottom of the product.

**HDMI** signal **← → RGB** Signal



**IR Receiver** 

• This is where the unit receives signals from the remote control.



**Auto Config** 

• Automatic adjustment function.(Operational for the analog signal only)

### OSD Menu

Adjusts screen brightness, contrast and color that you prefer.

TIME

Adjusts the timer options



Adjusts the OSD menu position.



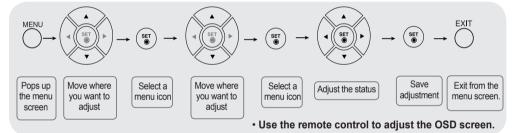
Adjusts Set ID and Set Network.



#### OSD(On Screen Display)

The OSD function enables you to adjust the screen status conveniently since it provides graphical presentation.

### How to adjust the OSD (On Screen Display) screen



- Press the **MENU** Button, then the main menu of the OSD appears.
- To access a control, use the Buttons.
- When the icon you want becomes highlighted, press the Button.
- Use the Buttons to adjust the item to the desired level.
- Accept the changes by pressing the **SET** Button.
- 6 Exit the OSD by pressing the EXIT Button.

### How to adjust the screen automatically

Press the AUTO button on a remote Control in the PC analog signal. Then optimal screen settings will be selected that fit into the current mode. If adjustment is not satisfactory, you can adjust the screen manually.

Auto Config

13



### **Adjusting Screen Color**

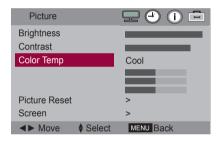
### Picture Mode



Brightness To adjust the brightness of the screen.

**Contrast** Adjust the difference between the light and dark levels in the picture.

Color Temp Color Settings

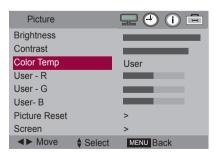


· Normal : Slightly bluish white.

• Cool : Slightly purplish white.

· Warm: Slightly reddish white.

• User: Select this option to use the user-defined settings.



Red / Green / Blue

Set your own color levels.



### **Adjusting Screen Color**

Picture Reset Return Picture Mode, Color Temp to the default factory Settings.

Screen Adjust the screen video.



ARC To select the image of the screen.(TOP Bottom Stretch)

(M2901S : Case input resolution 1360 x 768)
TOP: It's composed of 480 line from 1 line of Vertical.
Bottom: It's composed of 768 line from 481 line of Vertical.

(M3801S : Case input resolution 1920 x 1080)
TOP: It's composed of 502 line from 1 line of Vertical.
Bottom: It's composed of 1080 line from 503 line of Vertical.

XGA Mode (RGB PC input only): For more improved pr better picture quality, select the same mode

corresponding to computer resolution.

Auto-Config (RGB PC input only): This button is for the automatic adjustment of the screen position, clock

and phase. This function is available for analog signals only.

**H-Position** (RGB PC input only): Moving the screen position horizontally.

**V-Position** (RGB PC input only): Moving the screen position vertically.

Clock (RGB PC input only): To minimize any vertical bars or stripes visible on the screen

background. The horizontal screen size will also change. This function is available for analog

signals only.

Phase (RGB PC input only): To adjust the focus of the display. This item allows you to remove any

horizontal noise and clear or sharpen the image of characters. This function is available for

analog signals only.

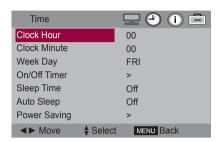
Screen Reset Return Screen Mode to the default factory Settings.



- In Stretch/Bottom Mode, Something wrong phenomenon can happen on screen. (ex: Horizontal stripes noise)
- Stretch Mode is mode for service.



### **Adjusting the Time function**



Clock Hour

If the current time is incorrect, reset the clock manually.

Press the the ◀ ▶ button to set the hour(00 to 23).

Clock Minute

If the current time is incorrect, reset the clock manually. Press the the ◀ ▶ button to set the minutes(00 to 59).

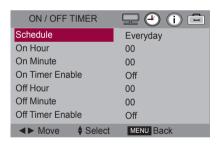
Week Day

If the current day is incorrect, reset the day manually.

Press the the ◀ ▶ button to set the day(MON, TUE, WED, THU, FRI, SAT, SUN).

On/Off Timer

The off time automatically switches the set to standby at the pre-set time.



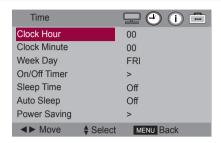
- Schedule: Use the user-defined settings.
   (Everyday, MON, TUE, WED, THU, FRI, SAT, SUN).
- On Hour: Use the user-defined settings.(00 to 23)
- On Minute: Use the user-defined settings (00 to 59)
- On Timer Enable: Use the user-defined settings.(On, Off)
- Off Hour: Use the user-defined settings (00 to 23)
- Off Minute: Use the user-defined settings (00 to 59)
- Off Timer Enable: Use the user-defined settings.(On, Off)



- In the event of power interruption (disconnection or power failure), the clock must be reset.
- Once the on or off time is set, these functions operate daily at the preset time.
- Off time function overrides On time function if they are set to the same time.
- When On time is operated, input screen is turned on as it was turned off.



### **Adjusting the Time function**



Sleep Time

The power is automatically turned off when the time set by a user is passed.

Press the the ◀ ▶ button to set the time(Off, 10, 20, 30, 60, 90, 120, 180, 240).

**Auto Sleep** 

If Auto Sleep is active and there is no input signal, the set switches to off mode automatically after about 10 sec.

ON: Automatically turn the product On/Off at preset times.

OFF: Disable the On/Off Time function.

**Power Saving** 

This screen brightness adjusting menu helps you save energy.



· Level: Total 4 screen brightness levels are provided.

Off: 100% lightLevel 1: 80% lightLevel 2: 60% lightLevel 3: 40% light

• On Hour: Use the user-defined settings.(00 to 23)

• On Minute : Use the user-defined settings.(00 to 59)

• Off Hour : Use the user-defined settings.(00 to 23)

• Off Minute: Use the user-defined settings.(00 to 59)

\* On/Off Hour and Minute: Enables to automatically turn on/off the power saving option at a scheduled time.

\* The power saving option becomes in effect only during the scheduled time frame.



### **Adjusting OSD image**



**H-Position** Moving the OSD screen position horizontally.

V-Position Moving the OSD screen position vertically.

**Display Time** To set the period of time that the OSD is displayed on the screen.

(Available times: Off, 15, 30, 45, 60second.)

**Information** This menu shows the input source and software version of the product.





### **Selecting the UTILITY**



Set ID You can assign a unique Set ID NO (name assignment) to each product when several

products are connected for display. Specify the number (1 to 99) using the ◀ ▶ button and exit. Use the assigned Set ID to individually control each product using the Product Control

Program.

**Power Indicator** Use the function to the set power indicator on the front side of the product to On or Off.

**DPM Select** A user can choose to turn the power saving mode on/off.

**Orbiter** A user can choose to reduce screen image sticking.

It will change the position of the image within a defined interval.

White Wash A user can choose to reduce screen image sticking.

White Wash fills the screen with solid white.

**Network Setup** Setup network information.



#### Orbiter

Orbiter function will change the position of the image within a defined interval.

The image on the screen will be moved slightly in sequence such as below.

It will move 2 pixel every 30 second in a counterclockwise direction after moving 2 pixel every 30 second in a clockwise direction. And then it will be repeated in equal sequence every 30 minutes.



2) White Wash

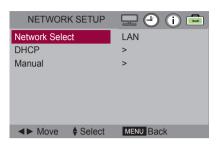
White Wash fills the screen with solid white. It will recover to original image after 5 minutes. This helps removes permanent images burned into the screen.

A permanent image may be impossible to clear entirely with white wash.

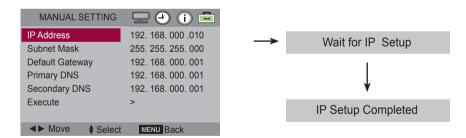




### **Adjusting UTILITY**



- · Network Select: Sets up network connections.
  - RS-232: Enable communication via Serial.
  - LAN: Enable communication via Ethernet.
- . DHCP: Allocates and sets up IP automatically.
- Manual: Sets up IP address, Gateway, Subnet Mask, Primary DNS and Secondary DNS.
   The setup process is complete when you select Execute, and "IP Setup Completed" is displayed at the bottom of the screen. While "Wait for IP Setup" is displayed, you cannot use the local keys and remote control. "Wait for IP Setup" is displayed for up to 40seconds.



<sup>\*</sup>If Network Select is set to Serial, DHCP and Manual are disabled.

**Factory Reset** Select this option to return to the default factory settings.

# **Connecting M3801S and NC1100**

Place the handle into the slots on the side of the product.



2 Use screws to secure the handle.



Place the rail in the slots on the side of the product.

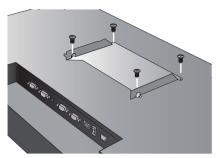




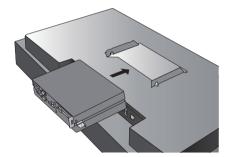
Be careful of sharp edges on the rail and the handle.

# **Connecting M3801S and NC1100**

As shown below, use screws to secure the Box Guide in the four slots at the back of the monitor.

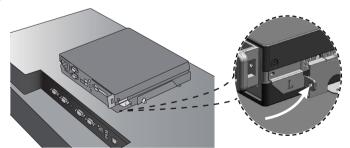


Attach the Box Guide to the rail slots, and press it upward.

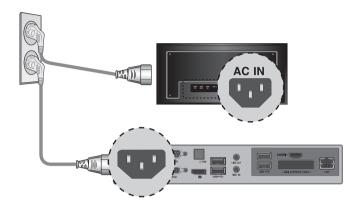




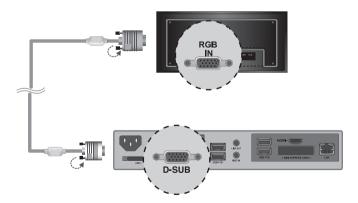
6 Use screws to secure the player and the Box Guide as shown below.



Connect the appropriate power cables to a monitor and NC1100 respectively.

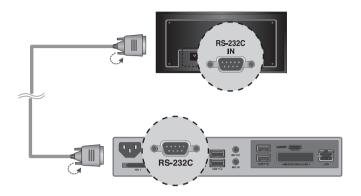


Connect the D-sub port of NC1100 and RGB-IN port of the monitor with a D-sub cable.





Connect NC1100 (OUT) to the monitor (IN) with an RS-232C cable.



Connect a LAN cable to the NC1100.



# Note

- For information on connecting the HDMI in Windows, see the Owner's Manual.
- HDMI cable is not provided with the product. Please purchase any optional items as needed.

### General Control

The properties that can be controlled in the General Control area are as follows:

• Display power (On/Off)

### Advanced Control

In the Advanced Control area, you can control various properties of the displays in the group.

Item	Details		SUPPORT
Display Information	Device	player name	0
		device name	0
		serial number	0
	Status	power	0
		input	0
		signal	0
		volume	x
		mute	x
	Self diagnosis	fan	х
		panel	0
		temperature	х
Video	Input type	AV	х
		Component	х
		RGB	0
		HDMI/DVI(DTV)	x
		HDMI/DVI(PC)	0
		SuperSign	х
Audio	Volume		х
	Mute		х
Time	Sets the time s Manager	ync of SuperSign	0
General	Remote contro	0	
	Advanced cont	rols	0



- You can also select and control a display in List view mode.
- The following messages can be received:
- \* OK: Normal
- \* NG: If the media player is not connected to SuperSign Manager or an error occurs in the monitor
- \* N/A: If the menu is not available on the monitor

# **Troubleshooting**

### No image is displayed

- Is the product power cord connected?
- Is the power indicator light on?
- Power is on, power indicator is green but the screen appears extremely dark.
- The power indicator Red?
- Does the 'Out of range' message appear?

• Does the 'no signal' message appear?

- See if the power cord is properly connected to the outlet.
- See if the power switch is turned on.
- · May need service.
- · Adjust brightness and contrast again.
- · Backlight may need repair.
- If the product is in power saving mode, move the mouse or press any key.
- Turn both devices off and then back on.
- The signal from the PC (video card) is out of the vertical or horizontal frequency range of the product. Adjust the frequency range by referring to the Specifications in this manual.
  - \* Maximum resolution

M2901S RGB: 1360 x 768 @ 60 Hz HDMI/DVI: 1360 x 768 @ 60 Hz M3801S RGB: 1920 x 1080 @ 60 Hz HDMI/DVI: 1920 x 1080 @ 60 Hz

- The signal cable between PC and product is not connected. Check the signal cable.
- Press the 'SOURCE' menu in the remote Control to check the input signal.

### 'Unknown Product' message appears when the product is connected.

• Did you install the driver?

 Install the product driver, which is provided with the product, or download it from the web site. (http://www. lg.com)

# **Troubleshooting**

### The screen image looks abnormal.

- Is the screen position wrong?
- D-Sub analog signal Press the "AUTO" button in the remote control to automatically select the optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Position OSD menu.
- See if the video card resolution and frequency are supported by the product. If the frequency is out of range, set to the recommended resolution in the Control Panel - Display - Setting menu.
- Do thin lines appear on the background screen?
- D-Sub analog signal Press the "AUTO" button in the remote control to automatically select an optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Clock OSD menu.
- Horizontal noise appears or the characters look blurred.
- D-Sub analog signal Press the "AUTO" button in the remote control to automatically select an optimal screen status that fits into the current mode. If adjustment is not satisfactory, use the Phase OSD menu.
- The screen is displayed abnormally.
- The proper input signal is not connected to the signal port. Connect the signal cable that matches with the source input signal.

### After-image appears on the product.

- After-image appears when the product is turned off.
- If you use a fixed image for a long time, the pixels may be damaged quickly. Use the screen-saver function.

# **Troubleshooting**

### Screen color is abnormal.

- Screen has poor color resolution (16 colors).
- Set the number of colors to more than 24 bits (true color)
   Select Control Panel Display Settings Color
   Table menu in Windows.
- Screen color is unstable or mono-colored.
- Check the connection status of the signal cable. Or, re-insert the PC video card.
- Do black spots appear on the screen?
- Several pixels (red, green, white or black color) may appear on the screen, which can be attributable to the unique characteristics of the LCD panel. It is not a malfunction of the LCD.

### After-image appears on the product.

- The power suddenly turned off.
- Is the sleep timer set?
- Check the power control settings. Power interrupted.
- "CAUTION! FAN STOP!"

  If the power is turned off after this message appears, it means that the fan is out of order.

  In this case, contact your local service center.

# **Specifications**

The product specifications can change without prior notice for product improvement.

### M2901S

LCD Panel	73.91 cm (29.1 inch) TFT (Thin Film Transistor) LCD (Liquid Crystal Display) Panel Visible diagonal size: 73.91 cm 0.1703 mm x RGB x 0.5108 mm (Pixel Pitch)										
Power	Rated Voltage Power Consumption	AC 100-240 V~ 50 / 60 Hz 1.3 A On Mode : 90 W (Max.) DPM Mode : ≤ 1.0 W (Max.) SW-OFF Mode : ≤ 0.5 W Off Mode : ≤ 0.3 W									
Dimensions & Weight	H	h <sub>D</sub> 4									
	Width x Height x Depth 76.34 cm (30.05 inch) x 30.58 cm (12.03 inch) x 8.55 cm (3.36 inch)										
	<b>Net</b> 11.0 kg (24.25 lb)										
Video Signal	Max. Resolution	RGB: 1360 x 768 @ 60 Hz HDMI/DVI: 1366 x 768 @ 60 Hz - It may not be supported depending on the OS or video card type.									
	Recommended Resolution	RGB: 1366 x 768 @ 60 Hz HDMI/DVI: 1366 x 768 @ 60 Hz - It may not be supported depending on the OS or video card type.									
	Horizontal Frequency	RGB : 28 kHz to 70 kHz HDMI/DVI : 28 kHz to 70 kHz									
	Vertical Frequency	RGB : 57 Hz to 63 Hz HDMI/DVI : 57 Hz to 63 Hz									
	Synchronization Type	Separate/Digital									
Input Connector	15-pin D-Sub type, HDMI	(digital), RS-232C, LAN									
Environmental Conditions	Operational Condition	Temperature: 5 °C to 35 °C , Humidity: 10 % to 80 %									
Conditions	Storage Condition	Temperature: -20 °C to 60 °C , Humidity: 5 % to 90 %									

### **NOTE**

■ Information in this document is subject to change without notice.

# **Specifications**

The product specifications can change without prior notice for product improvement.

### M3801S

LCD Panel	96.26 cm (37.9 inch) TFT (Thin Film Transistor) LCD (Liquid Crystal Display) Panel Visible diagonal size: 96.26 cm 0.4845 mm x RGB x 0.4845 mm (Pixel Pitch)										
Power	Rated Voltage Power Consumption	AC 100-240 V~ 50 / 60 Hz 1.5 A On Mode : 110 W (Max.) DPM Mode : ≤ 1.0 W (Max.) SW-OFF Mode : ≤ 0.5 W Off Mode : ≤ 0.3 W									
Dimensions & Weight	W —	h <sub>D</sub> 4									
	Width x Height x Depth 98.64 cm (38.83 inch) x 29.94 cm (11.78 inch) x 9.0 cm (3.54 inch)										
	<b>Net</b> 13.8 kg (30.42 lb)										
Video Signal	Max. Resolution	RGB: 1920 x 1080 @ 60 Hz HDMI/DVI: 1920 x 1080 @ 60 Hz - It may not be supported depending on the OS or video card type.									
	Recommended Resolution	RGB: 1920 x 1080 @ 60 Hz HDMI/DVI: 1920 x 1080 @ 60 Hz - It may not be supported depending on the OS or video card type.									
	Horizontal Frequency	RGB : 28 kHz to 70 kHz HDMI/DVI : 28 kHz to 70 kHz									
	Vertical Frequency	RGB : 57 Hz to 63 Hz HDMI/DVI : 57 Hz to 63 Hz									
	Synchronization Type	Separate/Digital									
Input Connector	15-pin D-Sub type, HDMI	(digital), RS-232C, LAN									
Environmental Conditions	Operational Condition	Temperature: $5^{\circ}\text{C}$ to $35^{\circ}\text{C}$ , Humidity: 10 % to 80 %									
Conditions	Storage Condition	Temperature: -20 °C to 60 °C , Humidity: 5 % to 90 %									

#### NOTE

■ Information in this document is subject to change without notice.

# Specifications

### PC Mode - Preset Mode

### M2901S

F	Preset mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	F	Preset mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.94	9	1280 x 720	45.0	60.0
2	720 x 400	31.468	70.08	10	1280 x 960	60.0	60.0
3	800 x 600	37.354	59.861	11	1360 X 480	29.934	59.988
4	800 x 600	37.879	60.317	12	1360 x 768	47.72	59.799
5	1024 x 768	47.816	59.92	13	1360 x 768	47.712	60.015
6	1024 x 768	48.363	60.004	14	1366 x 768	47.13	59.66
7	1152 x 864	54.348	60.053	15	1280 x 1024	63.668	59.895
8	1280 x 720	44.772	59.856	16	1280 x 1024	63.981	60.02

<sup>\* 5, 6, 12</sup> to 14 Select Resolution In SCREEN XGA Mode Menu

### M3801S

F	Preset mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	F	Preset mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.94	10	1280 x 720	44.772	59.856
2	720 x 400	31.468	70.08	11	1280 x 960	60.0	60.0
3	720 x 400	31.5	70.156	12	1360 x 768	47.72	59.799
4	800 x 600	37.354	59.861	13	1360 x 768	47.712	60.015
5	800 x 600	37.879	60.317	14	1366 x 768	47.13	59.66
6	1024 x 768	47.816	59.92	15	1280 x 1024	63.668	59.895
7	1024 x 768	48.363	60.004	16	1280 x 1024	63.981	60.02
8	1920 x 502	31.25	59.981	17	1920 x 1080	66.587	59.934
9	1152 x 864	54.348	60.053	18	1920 x 1080	67.5	60.0

<sup>\* 6, 7, 12</sup> to 14 Select Resolution In SCREEN XGA Mode Menu

### Power Indicator

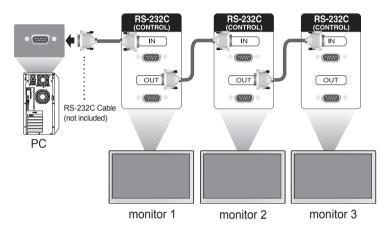
Mode	On Mode	DPM Mode	SW-OFF Mode	Off Mode			
Product	Green	Red	Red	-			

# Controlling the Multiple Product

■ Use this method to connect several products to a single PC. You can control several products at a time by connecting them to a single PC.

### Connecting the cable

- Connect the RS-232C cable as shown in the picture.
- The RS-232C protocol is used for communication between the PC and product. You can turn the product on/off, select an input source or adjust the OSD menu from your PC.



## RS-232C Configurations

#### 7-Wire Configurations (Standard RS-232C cable) PC Monitor TXD 2 TXD 2 RXD 3 3 RXD **GND** 5 5 **GND** DSR 4 4 DSR DTR 6 6 DTR CTS 7 7 CTS RTS 8 8 **RTS** D-Sub 9 D-Sub 9 (Female) (Male)

3-Wire Configurations (Not Standard RS-232C cable)												
	PC	Monitor										
TXD RXD GND DSR DTR CTS RTS	2 •— 3 •— 5 •— 4 6 7	2 3 5 4 6 7 8	TXD RXD GND DSR DTR CTS RTS									
	D-Sub 9 (Female)	D-Sub 9 (Female)										

### Communication Parameter

► Baud Rate: 9600 buad Rate (UART)

Data Length: 8 bit
Parity Bit: None
Stop Bit: 1bit
Flow Control: None

Communication Code : ASCII codeUse a crossed (reverse) cable

# Controlling the Multiple Product

### Command Reference List

	COMMAND1	COMMAND2	DATA1	DATA2	DATA3
1. Power	k	а	00 or 01		
Power	k	а	FF		
2. Input Select	k	b	07 or 09		
3. Input Select	Χ	b	60 or a0		
4. Aspect Ratio	k	С	0a to 0c		
5. Contrast	k	g	00 to 64		
6. Brightness	k	h	00 to 64		
7. OSD Select	k	1	00 or 01		
8. Remote / key Lock	k	m	00 or 01		
9. Color Temp	k	u	00 to 03		
10. User-Red Adjust	k	V	00 to 3c		
11. User-Green Adjust	k	W	00 to 3c		
12. User-Blue Adjust	k	\$	00 to 3c		
13. Abnormal state	k	Z	FF		
14. Auto Configuration	j	u	01		
15. Lamp Fault check	d	р	FF		
16. Time	f	а	00 to 06	00 to 17	00 to 3B
17. On Timer On/Off	f	b	00 or FF	00 to FF	
18. Off Timer On/Off	f	С	00 or FF	00 to FF	
19. On Timer Time	f	d	00 to 07	00 to 17	00 to 3B
20. Off Timer Time	f	е	00 to 07	00 to 17	00 to 3B
21. Sleep Time	f	f	00 to 08		
22. Auto Sleep	f	g	00 to 01		
23. DPM Select	f	j	00 to 01		
24. Reset	f	k	00 to 02		
25. Power Saving	f	1	00 to 03		
26. Power Indicator	f	0	00 or 01		
27. H-Position	f	q	00 to 64		
28. V-Position	f	r	00 to 64		
29. Serial No.	f	У	FF		
30. S/W Version	f	Z	FF		
31. Product Type	f	V	FF		
32. Model Name	f	W	FF		
33. Orbiter / White Wash	j	р	02 or 04 or 08		

# Controlling the Multiple Product

Note 1: [Data] 0: Monday, 1: Tuesday, ..., 6: Sunday, (7: Everyday)

[Data1] 00 to 23 Hours [Data2] 00 to 59 Minutes

Note 2: [Data] 0: Write, FF: Read

[Data1] bit0: Monday Timer On(1)/Off(0), ..., bit7: Everyday Timer On(1)/Off(0)



### Transmission / Receiving Protocol

#### Transmission

[Command1][Command2][ ][Set ID][ ][Data][Cr] or [Command1][Command2][ ][Set ID][ ][Data1 [ ][Data1][ ][Data2][Cr] or [Command1][Command2][ ][Set ID][ ][Data1 [ ][Data1][ ][Data2][Cr]

- \* [Command1]: First Command. (d, f, j, k)
- \* [Command2]: Second command.
- \* [Set ID]: Set up the Set ID number of product.

Range: 1 to 63[HEX]. By setting '0', server can control is all products.

In case of operating with more than 2 sets using set ID as '0' at the same time, it should not be checked the ACK message. Because all sets will send the ACK message, so it's impossible the check the whole ACK messages.

\* [Data]: To transmit command data.

Transmit 'FF' data to read status of command.

- \* [Cr]: Carriage Return. ASCII code '0 x 0D'
- \* []: Space. ASCII code '0 x 20'

#### **OK Acknowledgement**

[Command2][ ][Set ID][ ][OK][Data][x] or [Command2][ ][Set ID][ ][OK][Data][Data1][x] or [Command2][ ][Set ID][ ][OK][Data][Data1][Data2][x]

\* The Product transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

#### Error Acknowledgement

[Command2][ ][Set ID][ ][NG][Data][x]

\* If there is error, it returns NG

# Controlling the Multiple Product



### Transmission / Receiving Protocol

### 01. Power(Command: a)

► To control Power On / Off of the Set.

**Transmission** 

[k][a][][Set ID][][Data][Cr]

Data 00 : Power Off

▶ To show the status of Power On / Off.

Transmission

[k][a][][Set ID][][Data][Cr]

Data: FF

Acknowledgement

[a][][Set ID][][OK][Data][x]

01: Power On

Acknowledgement

[a][][Set ID][][OK][Data][x]

Data 00 : Power Off 01 : Power On 09 : DPM

### 02. Input Select(Command: kb)(Main Picture Input)

► To select input source for the Set.

You can also select an input source using the INPUT button on the remote control.

Transmission

[k][b][][Set ID][][Data][Cr]

Data 07: RGB(PC) 09: HDMI(PC)

Acknowledgement

[b][][Set ID][OK][Data][x]

#### 03. Input Select(Command: x b)

▶ To select input source foe the Set.

**Transmission** 

[x][b][][Set ID][][Data][Cr]

Data 60 : RGB(PC) a0 : HDMI(PC)

Acknowledgement

[b][][Set ID][OK][Data][x]

#### 04. Aspect Ratio(Command: kc) (Main picture format)

▶ To adjust the screen format.

You can also adjust the screen format using the ARC(Aspect Ratio Control) button on remote control or in the Screen menu.

**Transmission** 

[k][c][][Set ID][][Data][Cr]

Data 0a : Top 0b : Bottom 0c : Stretch

Acknowledgement

[c][][Set ID][OK][Data][x]

### 05. Contrast(Command: kg)

► To adjust screen contrast.

You can also adjust the contrast in the Picture menu.

**Transmission** 

<u>Acknowledgement</u>

[g][][Set ID][OK][Data][x]

[k][g][][Set ID][][Data][Cr]

Data Min: 00 to Max: 64

\* Real data mapping 0 : step 0, ...., a : step 10, ...., 64 : step 100

# Controlling the Multiple Product



### Transmission / Receiving Protocol

#### 06. Brightness(Command: kh)

► To adjust screen brightness.

You can also adjust the brightness in the Picture menu.

<u>Transmission</u> <u>Acknowledgement</u>

[k][h][[Set ID][[Data][Cr] [h][[Set ID][OK][Data][x]

Data Min: 00 to Max: 64

\* Real data mapping 0 : step 0, ...., a : step 10, ...., 64 : step 100

### 07. OSD Select(Command: k I)

► To control OSD on/off to the set.

<u>Transmission</u> Acknowledgement

[k][i][[Set ID][[Data][Cr] [i][[Set ID][OK][Data][x]

Data 00 : OSD Off 01 : OSD On

### 08. Remote/Key Lock(Command: km)

► To control Remote Lock on/off to the set.

This function, when controlling RS-232C, locks the remote control and the local keys.

Transmission Acknowledgement

[k][m][][Set ID][][Data][Cr] [m][][Set ID][OK][Data][x]

Data 00 : Off 01 : On

#### 09. Color Temperature(Command : k u)

► To adjust the screen color temperature.

<u>Transmission</u> <u>Acknowledgement</u>

[k][u][][Set ID][][Data][Cr] [u][][Set ID][OK][Data][x]

Data 00 : Normal 01 : Cool 02 : Warm 03 : User

### 10. Color Temperature User-RED Adjust(Command : k v)

▶ To adjust the screen user red color temperature.

Transmission Acknowledgement

[k][v][][Set ID][][Data][Cr] [v][][Set ID][OK][Data][x]

Data Min: 00 to Max: 3c

\* Real data mapping 00 : -30, ...., 1e : 0, ...., 3c : 30

# Controlling the Multiple Product

[w][][Set ID][OK][Data][x]

[\$][][Set ID][OK][Data][x]

[z][][Set ID][OK][Data][x]

Acknowledgement

<u>Acknowledgement</u>

Acknowledgement

### Transmission / Receiving Protocol

### 11. Color Temperature User-Green Adjust(Command: kw)

► To adjust the screen user green color temperature.

**Transmission** 

[k][w][][Set ID][][Data][Cr]

Data Min : 00 to Max : 3c

Data Will : 00 to Wax : 50

\* Real data mapping 00 : -30, .... , 1e : 0, ...., 3c : 30

### 12. Color Temperature User-Blue Adjust(Command : k \$)

▶ To adjust the screen user Blue color temperature.

**Transmission** 

[k][\$][][Set ID][][Data][Cr]

Data Min: 00 to Max: 3c

\* Real data mapping 00 : -30, ...., 1e : 0, ...., 3c : 30

13. Abnormal state(Command : k z)

▶ Abnormal State: Used to Read the power off status when Stand-by mode.

Transmission

[k][z][][Set ID][][Data][Cr]

Data FF : Read

00 - 11-----

00: Normal (Power on and signal exist)

01: No signal

02: Turn the monitor off by remote control

03: Turn the monitor off by sleep time function

04 : Turn the monitor off by RS-232C function

08 : Turn the monitor off by off time function

09: Turn the monitor off by auto sleep function

14. Auto Configuration(Command: j u)

▶ To adjust picture position and minimize image shaking automatically. it works only in RGB(PC) mode.

**Transmission** 

[i][u][][Set ID][][Data][Cr]

Data 01: To set

Acknowledgement

[u][][Set ID][OK][Data][x]

### 15. Lamp fault Check(Command : d p)

► To check lamp fault.

**Transmission** 

[d][p][][Set ID][][Data][Cr]

\* The data is always FF(in Hex).

<u>Acknowledgement</u>

[p][][Set ID][OK][Data][x]

Data 00 : Lamp Fault 01: Lamp OK



# Controlling the Multiple Product



### Transmission / Receiving Protocol

### 16. Time(Command: fa)

▶ Set the current time.

#### Transmission

### [f][a][][Set ID][][Data1][Data2][Data3][Cr]

#### [Data1]

- 0: Monday
- 1: Tuesday
- 2: Wednesday
- 3: Thursday
- 4: Friday
- 5 : Saturday
- 6: Sunday

#### [Data2]

00 H to 17 H: 00 to 23 Hours

00 H to 3 BH: 00 to 59 Minutes

#### Acknowledgement

### [a][][Set ID][][OK/NG][Data1][Data2][Data3][x]

\* When reading data, FFH is inputted for [Data1], [Data2] and [Data3]. In other cases, all are treated as NG.

#### 17. On Timer On/Off(Command : f b)

► Set days for On Timer.

#### **Transmission**

### [f][b][][Set ID][][Data1][Data2][Cr]

### [Data1]

0 (Write), FFH(Read)

### [Data2]

00 H to FFH

bit0: Monday On Timer On(1), Off(0) bit1: Tuesday On Timer On(1), Off(0) bit2: Wednesday On Timer On(1), Off(0) bit3: Thursday On Timer On(1), Off(0) bit4: Friday On Timer On(1), Off(0) bit5: Saturday On Timer On(1), Off(0) bit6: Sunday On Timer On(1), Off(0) bit7: Everyday On Timer On(1), Off(0)

#### <u>Acknowledgement</u>

[b][][Set ID][][OK/NG][Data1][Data2][x]

# Controlling the Multiple Product



### Transmission / Receiving Protocol

### 18. Off Timer On/Off (Command: fc)

▶ Set days for Off Timer.

### **Transmission**

#### <u>Acknowledgement</u>

[c][][Set ID][][OK/NG][Data1][Data2][x]

### [f][c][][Set ID][][Data1][Data2][Cr]

[Data1]

0 (Write), FFH(Read)

#### [Data2]

00 H to FFH

bit0: Monday Off Timer On(1), Off(0) bit1: Tuesday Off Timer On(1), Off(0) bit2: Wednesday Off Timer On(1), Off(0) bit3: Thursday Off Timer On(1), Off(0) bit4: Friday Off Timer On(1), Off(0) bit5: Saturday Off Timer On(1), Off(0) bit6: Sunday Off Timer On(1), Off(0) bit7: Everyday Off Timer On(1), Off(0)

### 19. On Timer Time(Command: fd)

▶ Set On Timer.

#### Transmission

### <u>Acknowledgement</u>

### [f][d][][Set ID][][Data1][Data2][Data3][Cr]

#### [Data1]

- 0 : Monday
- 1 : Tuesday
- 2: Wednesday
- 3: Thursday
- 4 : Friday
- 5 : Saturday
- 6 : Sunday
- 7 : Everyday

[Data2]

00 H to 17 H: 00 to 23 Hours

[Data3]

00 H to 3 BH: 00 to 59 Minutes

[b][][Set ID][][OK/NG][Data1][Data2][Data3][x]

[Data1], [Data2] and [Data3]. In other cases, all are treated as NG.

\* When reading data, FFH is inputted for

# Controlling the Multiple Product



### Transmission / Receiving Protocol

### 20. Off Timer Time(Command: fe)

► Set Off Timer.

**Transmission** 

<u>Acknowledgement</u>

### [f][e][][Set ID][][Data1][Data2][Data3][Cr]

[e][][Set ID][][OK/NG][Data1][Data2][Data3][x]

[Data1]

- 0 : Monday
- 1 : Tuesday
- 2: Wednesday
- 3 : Thursday
- 4: Friday
- 5 : Saturday
- 6: Sunday
- 7: Everyday

[Data2]

00 H to 17 H: 00 to 23 Hours

[Data3]

00 H to 3 BH: 00 to 59 Minutes

#### 21. Sleep Time(Command: ff)

► Set Sleep Timer.

#### **Transmission**

Acknowledgement

[f][f][][Set ID][][Data][Cr]

[Data] 0 : Off

1:10

2:20

3:30

4:60

5:90

6:120

7:180

8:240

### 22. Auto Sleep(Command: fg)

► Set Auto Sleep.

Transmission

Acknowledgement

[f][g][][Set ID][][Data][Cr]

[g][][Set ID][][OK/NG][Data][x]

[f][][Set ID][][OK/NG][Data][x]

[Data] 00 : Off 01 : On

# Controlling the Multiple Product

### Transmission / Receiving Protocol

### 23. DPM Select(Command: fi)

► Set the DPM (Display Power Management) function.

Transmission

[f][j][][Set ID][][Data][Cr]

[Data] 00 : Off 01 : On

Acknowledgement

[j][][Set ID][][OK/NG][Data][x]

#### 24. Reset(Command: fk)

▶ Execute the Picture, Screen and Factory Reset functions.

**Transmission** 

[f][k][][Set ID][][Data][Cr]

[Data]

0 : Picture Reset

- 1: Screen Reset
- 2 : Factory Reset

Acknowledgement

[k][][Set ID][][OK/NG][Data][x]

### 25. Power saving(Command: fl)

► To set the Power saving mode.

Transmission

[f][i][][Set ID][][Data][Cr]

[Data]

- 0 : Off
- 1: (static level 1)
- 2: (static level 2)
- 3: (static level 3)

Acknowledgement

[i][][Set ID][][OK/NG][Data][x]

#### 26. Power Indicator (Command: fo)

▶ To set the LED for Power Indicator.

Transmission

[f][o][][Set ID][][Data][Cr]

[Data] 0 : Off 1 : On

Acknowledgement

[o][][Set ID][][OK/NG][Data][x]

#### 27. H-Position (Command: f q)

► To set the Horizontal position

Transmission

[f][q][][Set ID][][Data][Cr]

\* The data range is from 00 to 64(in Hex)

Acknowledgement

[q][][Set ID][][OK/NG][Data][x]

# Controlling the Multiple Product

### Transmission / Receiving Protocol

#### 28. V-Position (Command: fr)

► To set the Vertical position.

Transmission

[f][r][][Set ID][][Data][Cr]

\* The data range is from 00 to 64(in Hex)

Acknowledgement

[r][][Set ID][][OK/NG][Data][x]

### 29. Serial No.(Command: f v)

▶ To read the serial numbers.

Transmission

[f][y][][Set ID][][Data][Cr]

Data FF (to read the serial numbers)

Acknowledgement

[y][][Set ID][][OK/NG][Data][x]

### 30. S/W Version(Command : f z)

► Check the software version.

Transmission

[f][z][][Set ID][][Data][Cr]

Data FFH: Read

**Acknowledgement** 

[z][][Set ID][][OK/NG][Data][x]

#### 31. Product Type(Command: f v)

► Check the product type.

**Transmission** 

[f][v][][Set ID][][Data][Cr]

Data FFH: Read

<u>Acknowledgement</u>

[v][][Set ID][][OK/NG][Data][x]

#### 32. Model Name(Command: fw)

► Check the model name.

Transmission

[f][w][][Set ID][][Data][Cr]

Data FFH: Read

Acknowledgement

[w][][Set ID][][OK/NG][Data][x]

#### 33. Orbiter / White Wash(Command : j p)

▶ Used to select the afterimage preventing function.

**Transmission** 

[j][p][][Set ID][][Data][Cr]

Data 2H: Orbiter

4H: White Wash 8H: Normal

[w][][Set ID][][OK/NG][Data][x]

Acknowledgement

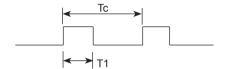
<sup>\*</sup> If you select Normal, it will recover to original image.

# IR Codes

► Connect your wired remote control to Remote Control port on the Product.

### ► Output waveform

single pulse, modulated with 37.917 kHz signal at 455 kHz



Carrier frequency

FCAR = 1 / Tc = fosc / 12

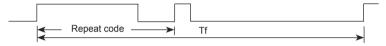
Duty ratio = T1 / Tc = 1 / 3

### ► Configuration of frame

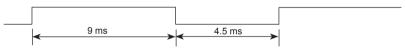
1st frame

Lead	Low custom code						High custom code					Data code					Data code															
	C0	C1	C2	СЗ	C4	C5	C6	С7	C0	C1	C2	СЗ	C4	C5	C6	С7	D0	D1	D2	D3	D4	D5	D6	D7	D0	D1	D2	D3	D4	D5	D6	D7

Repeat frame

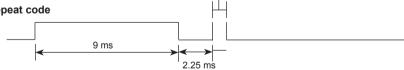


► Lead code

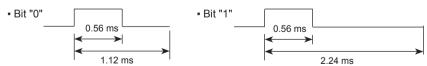


► 0.55 ms

► Repeat code



### **▶** Bit description



#### Frame interval: Tf

• The waveform is transmitted as long as a key is depressed.



# IR Codes

	Code(Hexa)	Function	Note
1	08H	POWER	Soft Power On/Off
2	0BH	INPUT	Input Source Select Menu Open
3	0EH	SLEEP	Sleep Time Control
4	0DH	ARC	Aspect Ratio Correction. (Top, Bottom, Stretch)
5	54H	AUTO	Auto Configuration (RGB Input Only)
6	10H	0	R/C Button
7	11H	1	R/C Button
8	12H	2	R/C Button
9	13H	3	R/C Button
10	14H	4	R/C Button
11	15H	5	R/C Button
12	16H	6	R/C Button
13	17H	7	R/C Button
14	18H	8	R/C Button
15	19H	9	R/C Button
16	43H	MENU	Main Menu On/Off
17	5BH	EXIT	Menu Exit
18	00H	Up(▲)	Menu Navigation
19	01H	Down(▼)	Menu Navigation
20	03H	Left(◀)	Decrement Value, Select menu item
21	02H	Right(►)	Increment Value, Select menu item



Make sure to read the Safety Precautions before using the product.

Keep the Owner's Manual(CD) in an accessible place for furture reference.

The model and serial number of the SET is located on the back and one side of the SET. Record it below should you ever need service.

MODEL		
SFRIAL		

Important	WARRANTY VOID IF REMOVED	
	Warranty void if removed.	

**WARNING** -This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Temporary noise is normal when powering ON or OFF this device.