

# Marine PC MPC-SL21W



## USER MANUAL

21"W IP-65 Marine Display  
Sunlight Readable LED B/L LCD

(1st Edition 2013)

All information is subject to change without notice.

Approved by	Checked by	Prepared by
Erik	Hank	Jack

## RECORD OF REVISION

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Version and Date	Page	Old Description	New Description	Remark
January 2013	All		Release 1.0	

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## IMPORTANT INFORMATION

### **EMC conformance**

All MarinePC equipment and accessories are designed to the best industry standards for use in the recreational marine environment. The design and manufacture of Marine PC equipment and accessories conform to the appropriate ElectroMagnetic Compatibility (EMC) standards, but correct installation is required to ensure that performance is not compromised.

### **Waste Electrical and Electronic Equipment Directive**

The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment. Whilst the WEEE Directive does not apply to some of MarinePC's products, we support its policy and ask you to be aware of how to dispose of this product.

The crossed out wheelie bin symbol, illustrated above, and found on our products signifies that this product should not be disposed of in general waste or landfill. Please contact your local dealer, national distributor or MarinePC Technical Services for information on product disposal.

### **Restriction of the use of certain Hazardous Substances**

This product uses components that comply with the requirements of the Restriction of the use of certain Hazardous Substances (RoHS) Directive 2002/95/ EC.

### **Warranty**

Please refer to the latest Warranty Terms and Conditions at:

[www.marinepc.com](http://www.marinepc.com)

## Packing List

Before installation, please ensure the following items have been shipped:

- 1 x MPC-SL21W Marine Display
- 4 x Mounting bracket lugs and 4 stainless steel threaded studs
- 1 x Power Cable ( 6ft.) or External AC/DC Power Supply
- 1 x VGA Cable ( 6ft.)

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.



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## Usage Notice



### **WARNING!**

01. To reduce the risk of electric shock, do not remove the cover or back. There are no user-serviceable parts inside.
02. Make sure you turn off and unplug the the display before installing devices.

### Precautions

*To maximize the life and safe use of your unit, always be sure to follow the warnings, precautions and maintenance recommendations in this user's guide.*

### In a Watercraft or Vehicle:

- The monitor should be visible to the driver only if it is used for navigation, or system control. Care should be taken to ensure distraction does not occur.
- Review all applicable federal, state and local laws and regulations to make sure the monitor is used properly and safely.
- Avoid using the monitor for extended times while the charging system is not running, or the monitor could drain the watercraft's battery.

### Cleaning the Monitor:

- Use a soft cloth moistened with mild detergent, isopropyl alcohol, or window cleaners to clean the display housing.
- Never use abrasive cleaners, waxes or solvents to clean the unit.

## 1.0 INTRODUCTION

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### **About MarinePC Marine Displays**

The MPC-SL21W is a high-performance marine Monitor, with optically bonded AR glass or sunlight readable touch screen, is especially engineered to survive the most demanding applications. You will soon become familiar with the quality difference in this bright sunlight readable (0.5 to 1,000 nits) monitor.

The range of MarinePC Sunlight Viewable Marine Displays has been developed to be used as part of an integrated marine navigation system and/or within an entertainment system. The displays, available in several sizes, are designed to be waterproof and suitable for use above or below decks.

The MarinePC MPC-SL21W sunlight readable monitor handles a wide-range of extreme environments making it the industry choice for mobile applications. Housed in a milled billet aluminum case, the slim-profile MarinePC MPC-SL21W is light weight and watertight. Front-mounted controls and the touch screen make the industrial rugged monitor user-friendly. We have incorporated the latest optical engineering to achieve optimal viewability in all lighting conditions, including direct sunlight. The MarinePC MPC-SL21W's power efficient, low heat design results in increased reliability and longevity required for mission critical deployment.

This handbook contains important information on the installation, operation and maintenance of the MarinePC Sunlight Viewable Marine Display range which is intended for use in the recreational marine market and covers all models.

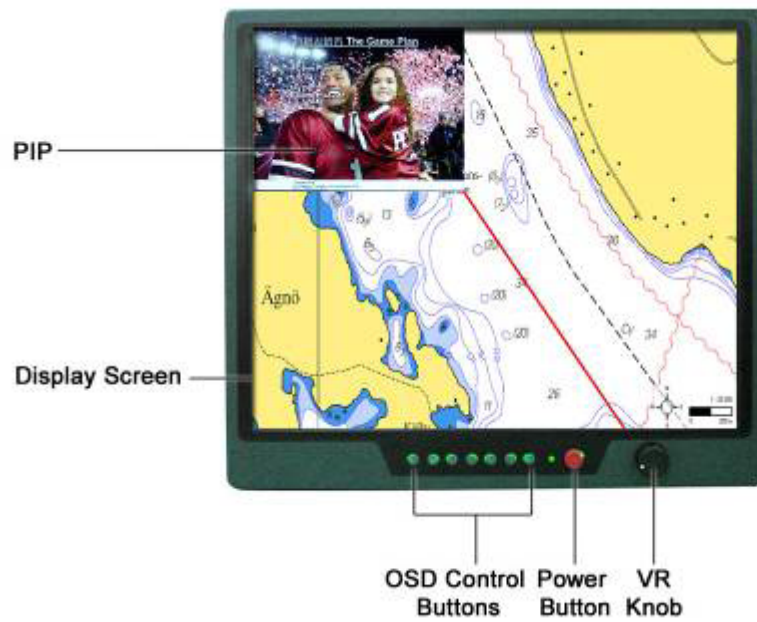


## 2.0 CONTROL AND FEATURES

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Your MarinePC Sunlight Viewable Marine Display has the following controls and features:

### Front View



### Back View



### 3.0 INSTALLATION

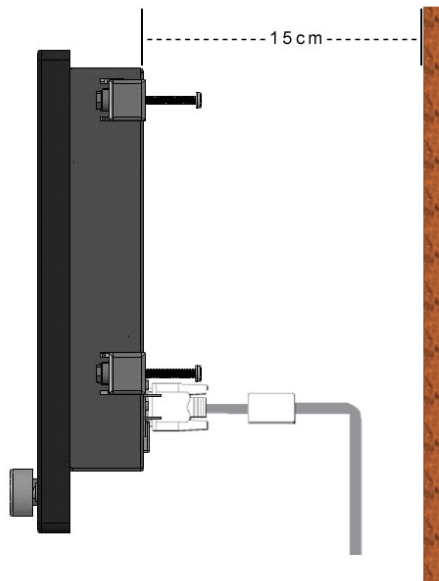
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It is important that your new display is installed and operated in accordance with the instructions provided in this handbook. Failure to do so could result in poor product performance and may invalidate your warranty.

When planning the installation the following points must be considered:

- Your MarinePC display is sunlight viewable and visible in direct sunlight.
- If temperatures exceed the normal temperature operating range the display could overheat and begin to blackout due to the limitations of TFT LCD technology.
- In order to minimize the chances of a malfunction, the following precautions should be taken during installation:
  - The display should be installed in an area where there is proper and adequate ventilation (min. 15cm clearance) . If it is possible to cool the area behind the display, it will significantly reduce the risk of a malfunction.
  - The display should be mounted at an angle to the sun. We do not recommend mounting the unit in a flat plane, which increases the surface area exposed to the sun and leads to increased heat absorption.

**IMPORTANT:** Your MarinePC display is only waterproof from the front. To maintain watertight integrity the display must be flush mounted ensuring that the rear casing is enclosed in a watertight enclosure and the front is sealed with a waterproof gasket.



The MarinePC MPC-SL21W is designed to be mounted in two configurations:

#### VESA75 / VESA100 MOUNT

The MarinePC MPC-SL21W is designed compatible with VESA75 and VESA100 mount. By installing the monitor with this kit, the user can adjust the viewing angle to improve viewability in changing environments. This mounting system has proven to be successful in supporting an extreme amount of weight in high vibration and difficult-mount applications.

The back of the monitor includes mounting points that you can use to mount the monitor as your installation requires.

Mounting holes on the MarinePC MPC-SL21W allow the monitor to be mounted by rear mounted using VESA75 or VESA100 mount

### PANEL (Flush) MOUNT

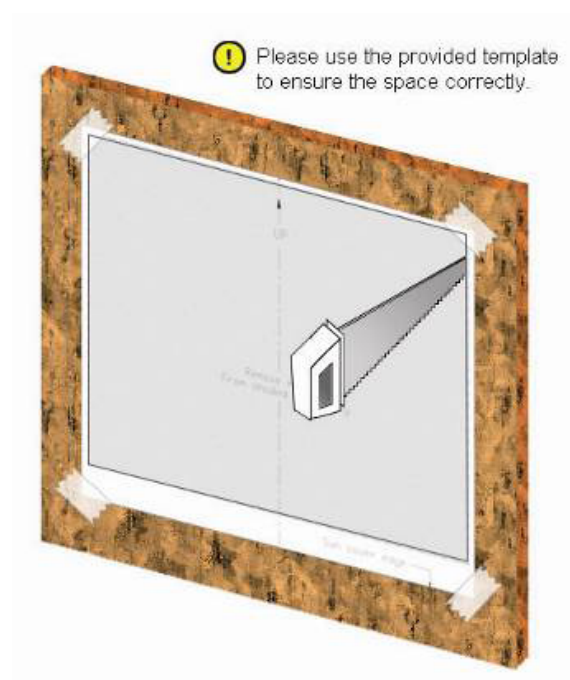
For installation, there are four tapped mounting holes on the two sides of the unit's panel. The mounting hardware packet is included with the product accessories in the shipping box. This packet includes four (4) stainless steel threaded studs, 3.2 cm and four (4) mounting lock nuts.

Your monitor can be installed using the mounting lock nuts (supplied) in the vertical keyways. Make sure that both brackets are in the same orientation.



### Preparing the installation site

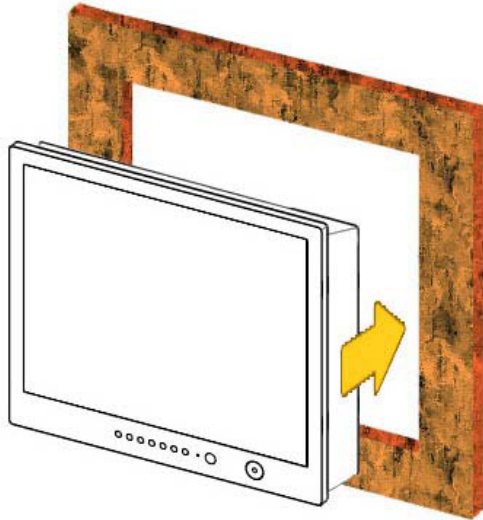
1. Select an installation site that has sufficient space behind for cable connections and ventilation.
2. Construct a template for the cutout. Dimension 20.1"x12.0" (510mm.x305mm.)
3. Using a jigsaw, carefully remove the center portion of the template.
4. Using a suitable file, smooth the edges of the aperture.



### Installing the display

1. Carefully insert the monitor into the aperture, ensuring that your gasket on the rear of the fascia lays flat against the aperture edge.

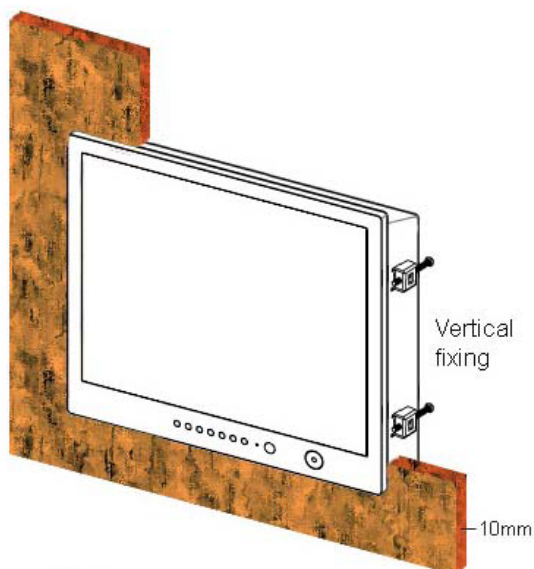
**IMPORTANT:** The gasket must lay flat against the aperture edge to ensure watertight integrity.



2. Place the mounting bracket lugs into the keyways and move them to the rear, securing the bracket to the monitor.

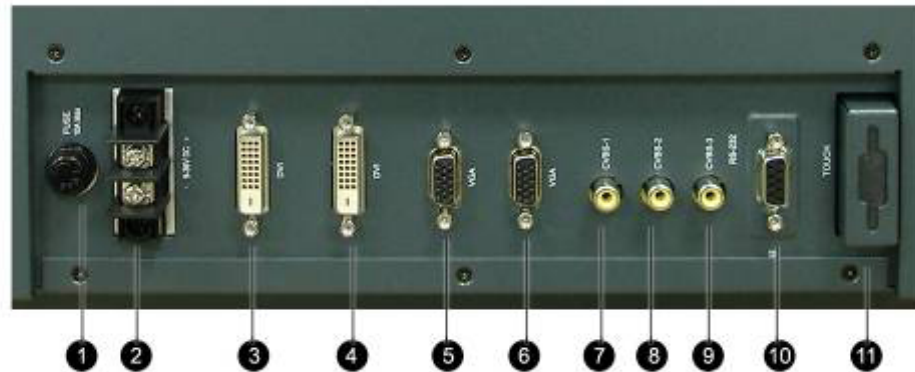
**Note:** *The mounting brackets can be used in either the horizontal or vertical keyways as required.*

3. Using a suitable screwdriver, tighten the mounting bracket screws to secure the monitor in position.



4. Connect all cables as required - see “Rear connections” below.

### Rear connections



The rear connectors are:

1. FUSE
2. Power Input
3. DVI-1 Input
4. DVI-2 Input
5. VGA-1 Input
6. VGA-2 Input
7. CVBS-1 Input (Composite Video) for AV input
8. CVBS-2 Input (Composite Video) for AV input
9. CVBS-3 Input (Composite Video) for AV input
10. RS232 Input
11. USB for Touch control (option)

### Planning the installation

Before you install your display, the following points should be considered:

- Power requirements.
- Display location and mounting options.
- Additional accessories, e.g. keyboard or speakers.

#### Power requirements

Your Sunlight Viewable display is designed to run on boat’s DC power systems rated at 12 V or 24 V. The MarinePC MPC-SL121W is equipped with 9-36V DC wide range power input.

The DC power system should be either:

- Negative grounded, with the negative battery terminal connected to the boat’s ground,
- Floating, with neither battery terminal connected to the boat’s ground.

#### Grounding the display

It is important that an effective radio frequency (RF) ground is connected to the display. You must ground the display by connecting the drain wire (shield) of the power input cable to the nearest ground point of the boat’s RF ground system.

### Display location and mounting options

Your display can be mounted using the flush mounting kit supplied. MarinePC recommends that you power the unit and select a suitable mounting location prior to installing the display.

When planning the display location, the following points should be considered to ensure safe, comfortable and reliable operation:

- **Convenience**- the mounting location should be easily accessible to allow operation of the controls and should enable easy viewing of the display.

### Power connections

The power connection to the display should be made at either the output of the battery isolator switch, or at a DC power distribution panel. MarinePC recommends that power is fed directly to the display via its own dedicated cable system and **MUST** be protected by a thermal circuit breaker or fuse, fitted close to the power connection. If you do not have a thermal circuit breaker or fuse in your power circuit, you **MUST** fit an in-line breaker or fuse to the positive (red) lead of the power cable.



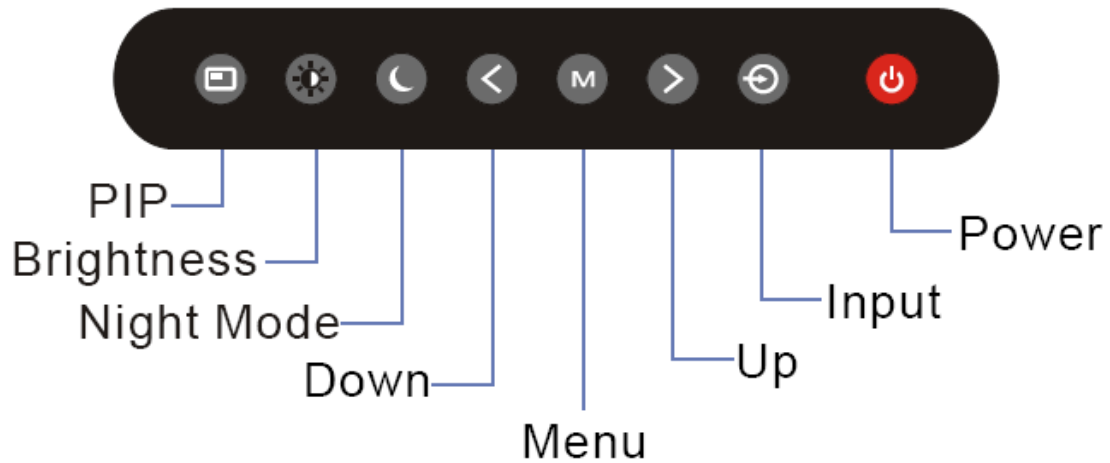
- **Installation angle**- the display should be mounted at an angle. Mounting it in a flat plane is not recommended due to increased heat absorption.
- **Viewing angle** - this LCD has been chosen to give the very best performance, including viewing angle. However, the contrast and colors seen on all LCD displays vary slightly with viewing angle.
- **Environment** - to prevent overheating, do not restrict airflow at the rear of the display unit; If the space behind the display is air conditioned or cooled by a fan, it will help in keeping the unit's temperature down when mounted in direct sunlight.  
**FAILURE TO ADEQUATELY VENTILATE THE UNIT COULD INVALIDATE YOUR WARRANTY.**  
The display should be protected from physical damage and excessive vibration. Although the display unit is waterproof from the front when installed correctly, it is good practice to mount it in a protected area away from prolonged and direct exposure to rain and salt spray. **DO NOT** place the display near to a heat source.

## Typical Installation Diagram



## 4.0 OSD OPERATION

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### Introduction

Your MarinePC Sunlight Viewable display can be controlled using the On Screen Display (OSD) menu and/or the 8 buttons on the front bezel of the unit.

The OSD menu enables you to change the way in which your display is set up and is accessed using the Menu button.

### Using the buttons

Each of the 8 buttons on the front bezel of your display has an input and a control function.

Input functions enable you to select the type of signal input to the display.

Control functions enable you to change the appearance of the display.

### Power

Power ON Key



To power your monitor ON, just need to press this button.

Power OFF Key



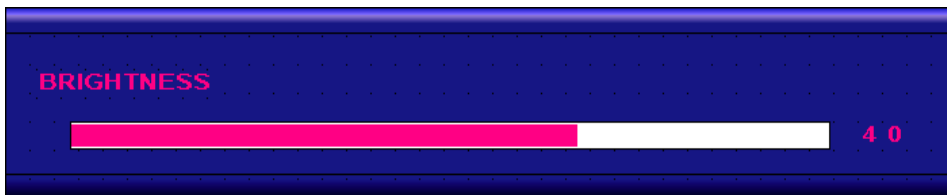
To power your monitor OFF, just press this button.

Pressing the power button will display a list of what input for the main screen is associated with each button. This is just a reminder and is not part of the input selection process.



## BRIGHTNESS Key

When you press the BRIGHTNESS Key, the screen will show the following image



You can press the UP /DOWN Key to do the screen brightness adjustment. When the brightness achieve 50 and keeping pressing “UP” Key, the dimming will keep the brightness at 50. When you dimming down to brightness 1 and keeping pressing the “DOWN” Key, the dimming will keep the brightness at 1.

If you keep pressing “BRIGHTNESS” Key and hold it, the brightness will appear as following status:

. . . .2 → 1 → 2→ 3 → . . . → 48 → 49 → 50 → 49 → 48 → . . . .

And if you release the “BRIGHTNESS” Key around 5 seconds with any action, the brightness bar will disappear.

When you press “BRIGHTNESS” Key and other Key (not including Up/Down Key), the BRIGHTNESS status bar image will disappear.

When you press NIGHT MODE KEY or choose VR adjustment, the BRIGHTNESS KEY will be no function if you press it.

## VR BRIGHTNESS Key

If you want to enable the VR Brightness function, you need to press “MENU” KEY and then choose VR function. When you rotate the VR knob, the VR BRIGHTNESS status bar will appear as below image (dimming range from 1~15):



When you enter the VR BRIGHTNESS mode, it will be no function if you press the BRIGHTNESS KEY. And if you release the VR knob without any action around 5 seconds, the VR BRIGHTNESS Status bar image will be closed.

When you enter the “NIGHT MODE” or choose “BRIGHTNESS” Key for brightness adjustment, it will be no function if you control the VR knob.

When you press “MENU”, “DISP”, “PIP” Key, you will enter the menu item selection. And the VR BRIGHTNESS status bar image will be closed.

Any modified or changed parameter setting will be automatically saved if you power off or Exit the BRIGHTNESS status bar.

## NIGHT MODE KEY

When you press the “NIGHT MODE” KEY, the dimming will be down to under 0.5 nit directly. And if you press “BRIGHTNESS” KEY or “VR” knob at this moment, it will not function until you press the “NIGHT MODE” KEY again to release this restriction.

When you press “MENU”, “DISP”, “PIP” Key, you will enter the menu item selection.

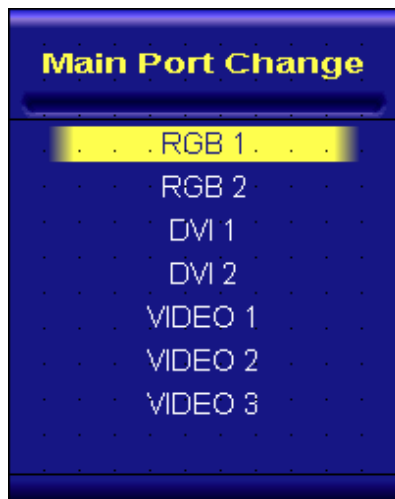
Any modified or changed parameter setting will be automatically saved if you power off or Exit the NIGHT MODE.

## UP / DOWN KEY

It works as menu item selection use, the “UP”KEY can be used as “RIGHT” KEY and the “DOWN” KEY can be used as “LEFT”KEY.

## INPUT KEY

When you press “INPUT” KEY, the screen will pop up the following image:



You can press the “UP”/ ”DOWN” KEY for the menu item selection above. It will remain at “VIDEO 3” position if you keep pressing “DOWN” KEY to the end. And it will also remain at “RGB1” position if you keep pressing “UP” KEY to the end.

When you press and hold the “INPUT” KEY, the menu screen will show as

RGB1→RGB2→ . . →VIDEO3→VIDEO2→ . .

If you release the “INPUT” KEY for 5 seconds without any action, the menu selection screen will be closed. And it will remain at the item which you’d selected.

When you press “MENU”, “BRIGHTNESS”, “PIP” Key, you will enter the menu item selection.

Any modified or changed parameter setting will be automatically saved if you power off or Exit the menu setting screen.

PIP KEY



1. Default main screen shows at RGB1 & RGB2→ Press “PIP” KEY→ Figure 1
2. Default main screen stays at DVI1 & DVI2→ Press “PIP” KEY→ Figure 2
3. Default main screen stays at VIDEO 1→ Press “PIP” KEY→ Figure 3\_1
4. Default main screen stays at VIDEO 2→ Press “PIP” KEY→ Figure 3\_2
5. Default main screen stays at VIDEO 3→ Press “PIP” KEY→ Figure 3\_3

PIP Function Supporting Table								
Main \ Sub	RGB 1	RGB 2	DVI 1	DVI 2	VIDEO 1	VIDEO 2	VIDEO 3	
RGB 1			OK	OK	OK	OK	OK	Figure 1
RGB 2			OK	OK	OK	OK	OK	Figure 1
DVI 1	OK	OK			OK	OK	OK	Figure 2
DVI 2	OK	OK			OK	OK	OK	Figure 2
VIDEO 1	OK	OK	OK	OK		OK	OK	Figure 3_1
VIDEO 2	OK	OK	OK	OK	OK		OK	Figure 3_2
VIDEO 3	OK	OK	OK	OK	OK	OK		Figure 3_3

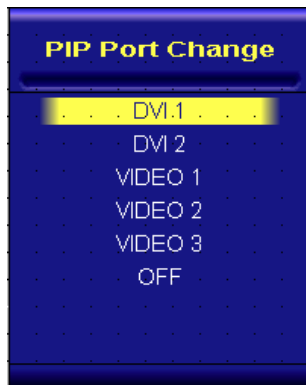


Figure 1

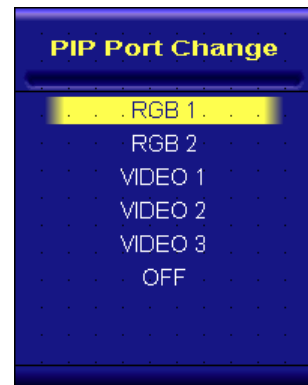


Figure 2

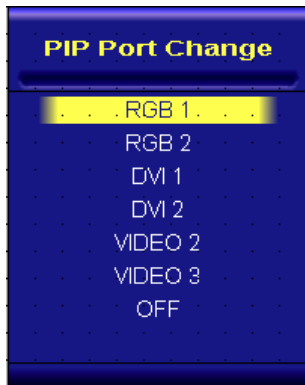


Figure 3\_1

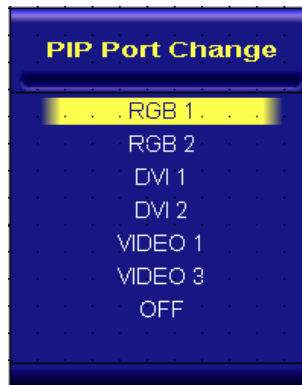


Figure 3\_2

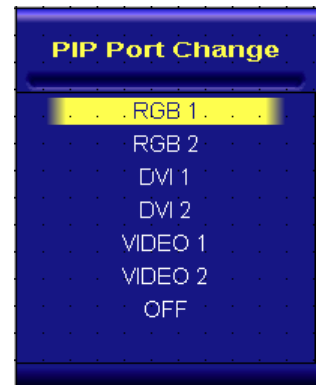


Figure 3\_3

When you enter the “PIP Port Change” screen, the status bar will remain at “OFF” position if you keep pressing the “DOWN” KEY to the end. At the other hand, the status bar will remain at top item of each menu if you keep pressing the “UP” KEY to the end.

When you press and hold the “PIP” KEY, the menu screen will show as:

DVI→VIDEO1→VIDEO2→VIDEO3→OFF→VIDEO3→VIDEO2→VIDEO1→DVI→VIDEO1→...

If you release the “INPUT” KEY for 5 seconds without any action, the menu selection screen will be closed. And it will remain at the item which you’d selected.

When you press “MENU”, “BRIGHTNESS”, “PIP” Key, you will enter the menu item selection.

Any modified or changed parameter setting will be automatically saved if you power off or Exit the menu setting screen.



When you press “MENU” KEY, the Navpixel OSD main menu screen will appear as below:



If you release the “MENU” KEY for 30 seconds without any action, the menu OSD screen will disappear automatically. You can also choose “QUIT” and then press “MENU” KEY to exit this OSD menu screen.

RGB1 & 2's setting screen:

	1280 x 1024	fH: 80.0 KHz / fV: 75 Hz	
RGB 1	PHASE	0	( 1~64 )
RGB 2	CONTRAST	0	( 1~64 )
	H_POSITION	0	( 1~99 )
DVI 1	V_POSITION	0	( 1~40 )
DVI 2	RED_GAIN	0	( 1~64 )
	GREEN_GAIN	0	( 1~64 )
VIDEO 1	BLUE_GAIN	0	( 1~64 )
VIDEO 2	TEMPERATURE	5500K	( 5500K/6500K/7000K/8000K )
VIDEO 3	DISP_MODE	FULL	( FULL/EVEN/NORAML )
OSD	AUTO ADJUST	YES	
QUIT	EXIT		

**RGB Setting Item Description:**

- PHASE---- Horizontal Sampling Phase Adjustment ◦
- CONTRAST---- Contrast Adjustment ◦
- H\_POSITION--- Horizontal Screen Adjustment ◦
- V\_POSITION--- Vertical Screen Adjustment ◦
- R\_LEVEL---- Red Color level Adjustment ◦
- G\_LEVEL---- Green Color level Adjustment ◦
- B\_LEVEL---- Blue Color level Adjustment ◦
- TEMPERATURE---- Color Temperature Adjustment ◦
- DISP MODE----
  - FULL---- Full Screen ◦
  - EVEN---- Half Screen ◦
  - NORMAL--- Keep normal aspect ratio ◦
- AUTO ADJUST---- Auto adjustment◦
- EXIT---- Quit from current setting◦

DVI 1 & 2's setting screen:



**DVI Setting Item Description:**

- CONTRAST——Contrast Adjustment ◦
- R\_LEVEL—— Red Color level Adjustment ◦
- G\_LEVEL—— Green Color level Adjustment ◦
- B\_LEVEL—— Blue Color level Adjustment ◦
- TEMPERATURE—— Color Temperature Adjustment ◦
- DISP MODE——
  - FULL—— Full Screen ◦
  - EVEN—— Half Screen ◦
  - NORMAL—— Keep normal aspect ratio ◦
- EXIT—— Quit from current setting ◦

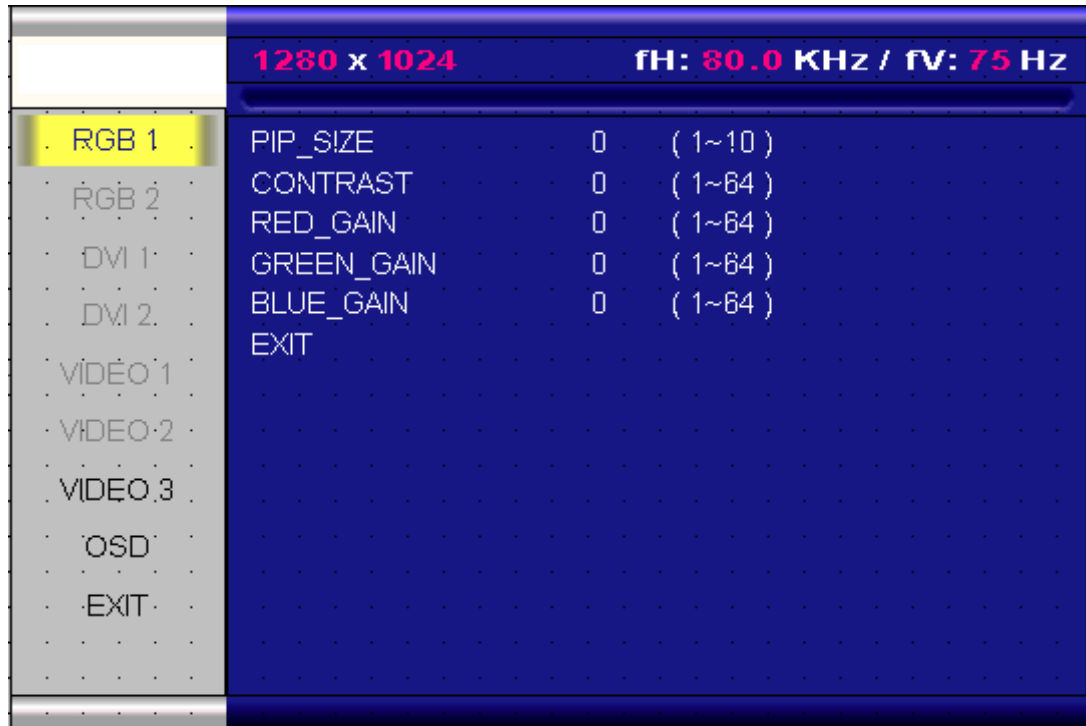
VIDEO 1 & 2 & 3' setting screen:

RGB 1	CONTRAST	0	( 1~64 )
RGB 2	SHARPNESS	0	( 1~10 )
	HUE	0	( 1~64 )
DVI 1	RED_GAIN	0	( 1~64 )
DVI 2	GREEN_GAIN	0	( 1~64 )
VIDEO 1	BLUE_GAIN	0	( 1~64 )
	TEMPERATURE	5500K	( 5500K/6500K/7000K/8000K )
VIDEO 2	EXIT		
VIDEO 3			
OSD			
EXIT			

**VIDEO Setting Item Description:**

- CONTRAST—— Contrast Adjustment ◦
- SHARPNESS—— Horizontal edge sharpness
- HUE—— Color Adjustment
- R\_LEVEL—— Red Color level Adjustment ◦
- G\_LEVEL—— Green Color level Adjustment ◦
- B\_LEVEL—— Blue Color level Adjustment ◦
- TEMPERATURE—— Color Temperature Adjustment ◦
- EXIT—— Quit from current setting◦

PIP Sub-menu setting screen:

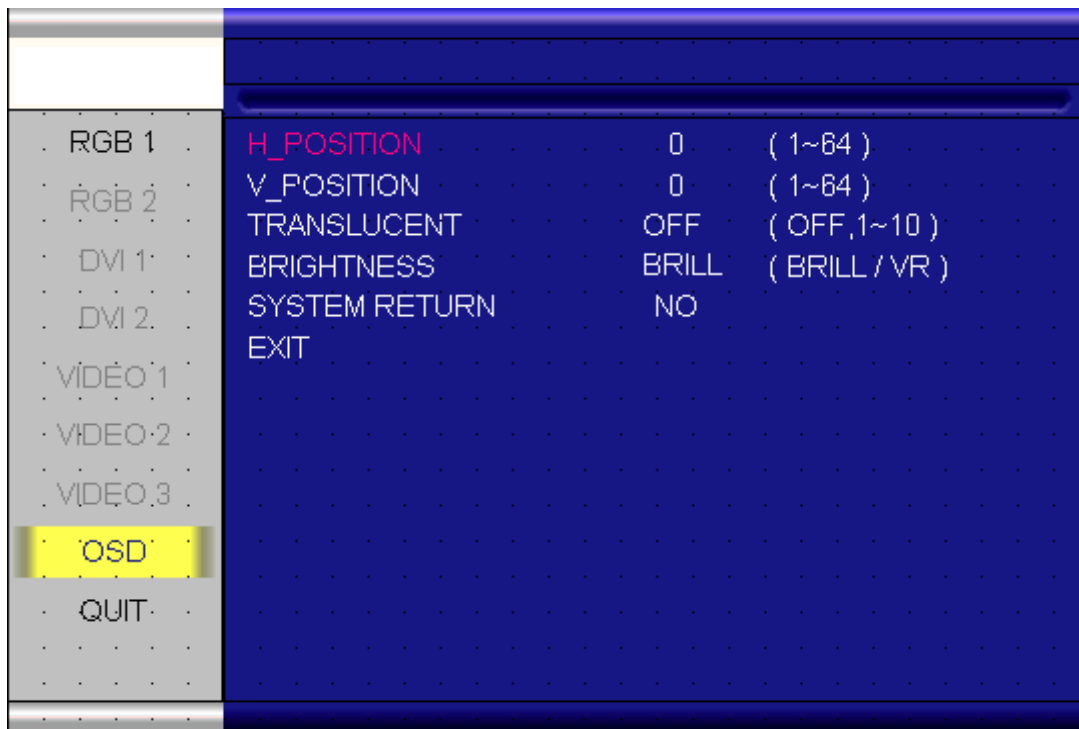


**PIP Setting Item Description:**

- PIP\_SIZE—— Picture in Picture Screen Size Adjustment ◦
- CONTRAST—— Contrast Adjustment ◦
- R\_LEVEL—— Red Color level Adjustment ◦
- G\_LEVEL—— Green Color level Adjustment ◦
- B\_LEVEL—— Blue Color level Adjustment ◦
- EXIT—— Quit from current setting◦



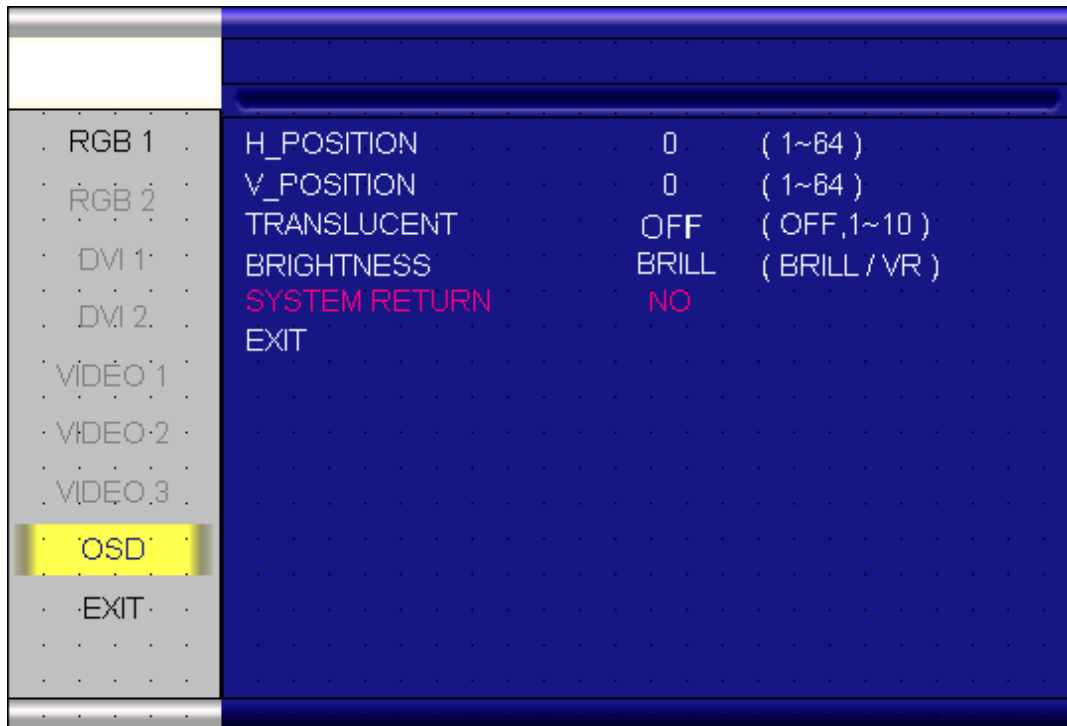
OSD setting screen:



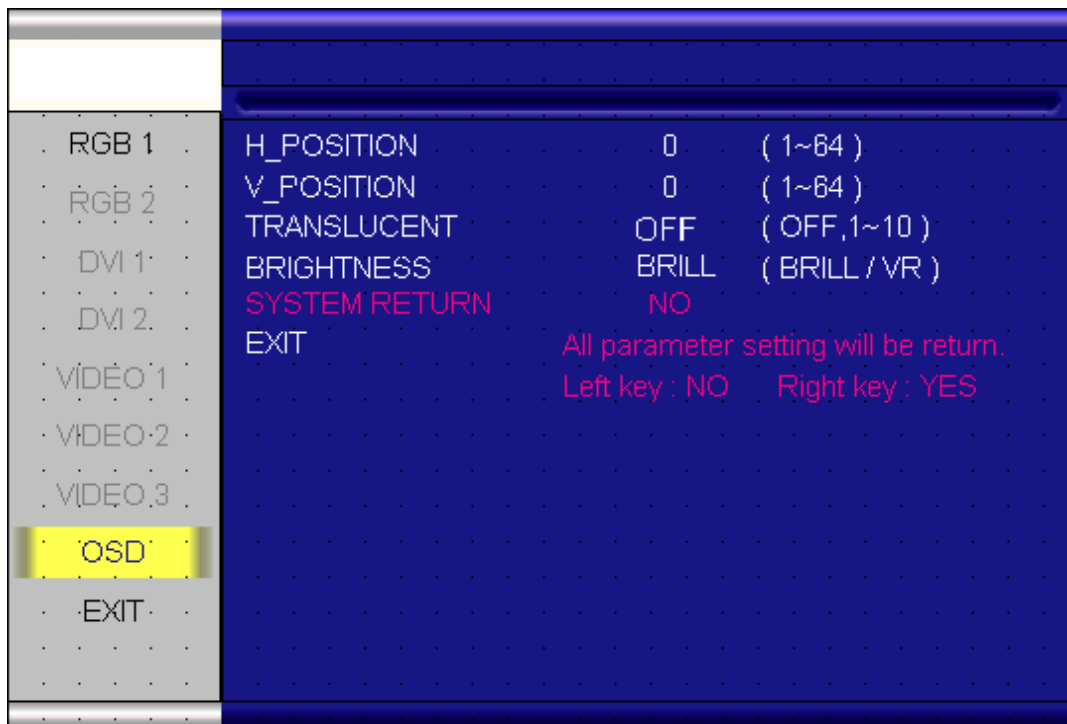
**OSD Setting Item Description:**

- H\_POSITION— Horizontal Screen Adjustment ◦
- V\_POSITION— Vertical Screen Adjustment ◦
- TRANSLUCENT— Screen background color can be adjusted as transparent as you want (total 10 scales) ◦
- BRIGHTNESS— Selection between “BRIGHTNESS” key or “VR” Button for brightness adjustment ◦
- SYSTEM RETURN— Restore all parameter setting to factory default value ◦
- EXIT— Quit from current setting.

SYSTEM RETURN setting screen:



You may choose “SYSTEM RETURN” selection item on the OSD Screen to restore all of the parameter setting to factory default value. When you press “UP” or “RIGHT” KEY, the parameter will show “YES” and confirm it.



“KEY LOCK” Mode Function setting screen:

When you press “MENU” and “BRIGHTNESS” KEY simultaneously for 3 seconds, you will enter the “KEY LOCK” mode. At the same time, the screen will show “KEY LOCK” image as below for 5 seconds and then disappear.

In the “KEY LOCK” mode, it will be no function to press any key. When you press the key in the “KEY LOCK” mode, the screen will show “KEY LOCK” image as below for 5 seconds and then disappear.



To Release/Unlock “KEY LOCK” Mode Function setting screen:

In the “KEY LOCK” mode, when you press “MENU” and “BRIGHTNESS” KEY simultaneously for 3 seconds, you will release/unlock the “KEY LOCK” mode. At the same time, your screen will show “KEY UNLOCK” image as below.



## 5.0 TECHNICAL SPECIFICATION

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### 5.1 General Specification

#### LCD Display

<i>Backlight</i>	21.5" LED Backlight
<i>Active Display Area</i>	476.64 x 268.11 mm
<i>Brightness</i>	1000 cd/m2 *
<i>Resolution</i>	1920x1080
<i>Contrast Ratio</i>	1000:1
<i>Pixel Pitch (mm)</i>	0.248 (H) x 0.248(V)
<i>Viewing Angle</i>	170 (H), 160(V)
<i>Display Color</i>	16.7M
<i>Response Time</i>	5ms
<i>Inputs</i>	VGAX2, DVIx2, Composite x3, RS232x1
<i>Picture in Picture</i>	3 stages

#### Mechanical

<i>IP Rating</i>	Facial waterproof to IP65 standards when console mounted.
<i>Construction</i>	Rugged Aluminum Alloy Chassis
<i>Mounting</i>	Panel (Flush) mount, VESA mount
<i>Dimension</i>	20.7"Wx13.59"Hx2.22"D 525.8(w)x 345.2(H)x56.4(D)

#### Power

<i>Voltage</i>	9-30VDC, Operates on 12V and 24V systems
<i>Power Consumption</i>	76W

#### Environmental

<i>Operating Temperature</i>	-10°C~50°C
<i>Non-Operating Temperature</i>	-20°C~70°C

#### Certification

Designed to meet FCC Class A,  
Marine standard IEC60945, IACS-E10

\* The brightness is measured under the 25°C ambient temperature before touch attached. Due to Panel material's deviation, different panel supplier will set different specific variance range to optical characteristics. The factors of time used, Lamp current, ambient temperature will influence the optical measurements.

