4K Marine Display

27” ~ 55”

Model No.: W27L100-MRA3FP
W32L100-MRA1FP
W43L100-MRA2FP
W55L100-MRA1FP

User Manual

Version 1.0
Document Part Number 915211101148

Please read this instruction manual before operating the device and retain them for future reference.

Contents

Preface

Copyright Notice

Trademark Acknowledgement

Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Warranty

Our warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W16Axxxxxxxx means October of year 2016.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

Note:
A note is used to emphasize helpful information

Important:
An important note indicates information that is important for you to know.

Caution A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.
Attention Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.

Warning! An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.
Avertissement ! Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.

Earth Ground The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.
Mise à la Terre Le symbole de Mise à Terre indique le risqué potentiel de choc électrique grave à la terre incorrecte.

Safety Information

Warning! Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Avertissement! Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connections lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces chassis.

Caution Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Attention T oujours verifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques modernes sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

Safety Precautions

For your safety carefully read all the safety instructions before using the device. Keep this user manual for future reference.

- Always disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection and to protect the equipment from overheating.
- Before connecting the equipment to the power outlet make sure the voltage of the power source is correct.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- All cautions and warnings on the equipment should be noted.
- Always ground yourself to remove any static charge before touching the board.

About This User Manual

This User Manual provides information about using the Winmate® 4K Marine Display. The documentation set provides information for specific user needs, and includes:

- **4K Marine Display User Manual** – contains detailed description on how to use the display, its components and features.

Note:
Some pictures in this guide are samples and can differ from actual product.

Document Revision History

Version	Date	Note
1.0	26-Jul-2024	New document release

Chapter 1: Introduction

This chapter gives you product overview, describes features and hardware specification. You will find all accessories that come with the display device in the packing list. Mechanical dimensions and drawings included in this chapter.

1.1 Overview

Congratulations on purchasing Winmate® 4K Marine Display. Versatile display designed for panel mount and VESA mount design for industrial applications.

1.2 Product Features

Winmate® 4K Marine Display features:

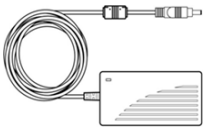
- Edge to edge narrow bezel design and fanless cooling system
- OSD Key For quick mode changing between ECDIS DAY, DUSK, and NIGHT mode
- 9~36 V DC to DC power input acceptable (Isolation Resistance)
- Color calibrated for ECDIS compliance (Optional)

1.3 Package Contents

Carefully remove the box and unpack your display. Accessories may vary based on your order. Please check if all the items listed below are inside your package. If any of the ordered items are missing or damaged contact us immediately.

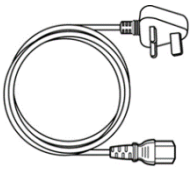
- **User Manual (Hardcopy)**

- **Black Screw Bolts***



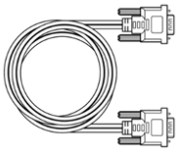
- **110~240V AC Power Adapter**

(Not for Marine Use)



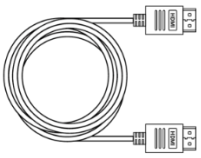
- **Power Cord**

(Not for Marine Use)



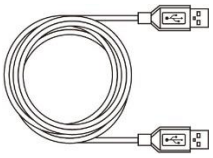
- **VGA Cable**

Part No. 9441151150Q8



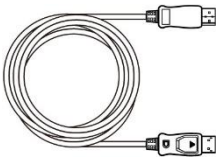
- **2 x HDMI Cable**

Part No. 94E0190190P3



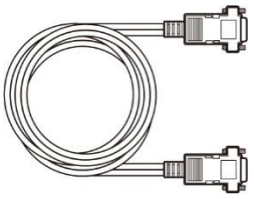
- **USB Cable**

Part No. 948018102100



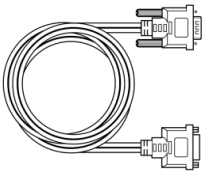
- **Display Port Cable**

Part No. 94E0200200K0



- **RS232 Cable**

Part No. 94G4094090K1



- **DVI Cable**

Part No. 9455295290Q0

**Notice: Screw bolts provided by Winmate only to be used to screw the display onto a console from the rear side. If you prefer your own bolts, please make sure to use M4 and 30mm in length.*

1.4 Product Overview

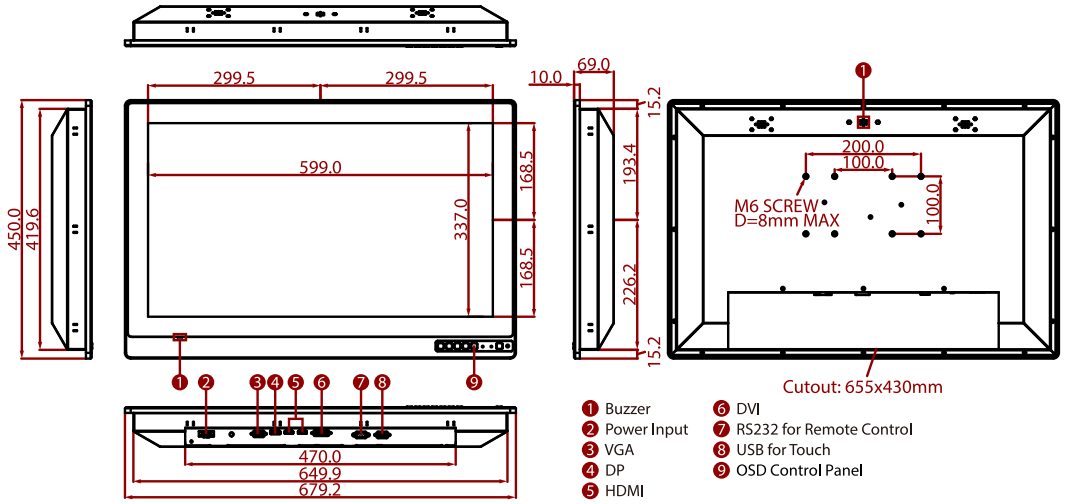
This section describes physical appearance of the Display.

Note: Notice that standard input terminals include VGA and HDMI. Your device may be equipped with other input terminals based on your order.

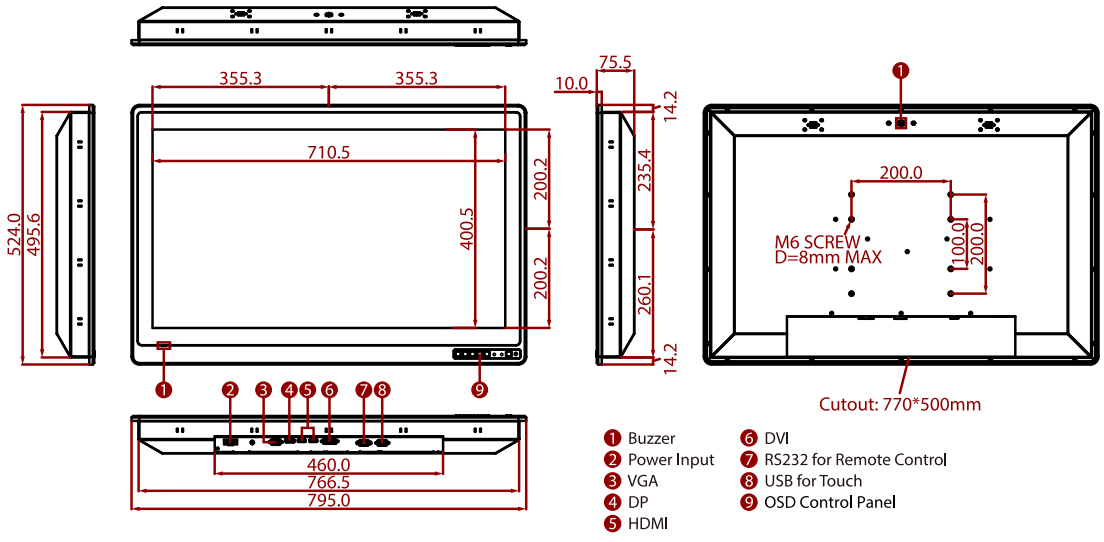
Note: Notice that input and output connectors may vary by product size and specifications. The picture above shows only a prototype model for information purposes only. The location of OSD panel may vary by model. Refer to a product datasheet for more details.

For product dimensions and VESA dimensions of the specific model, please refer to the Appendix A of this user manual.

W27L100-MRA3FP *Unit: mm*

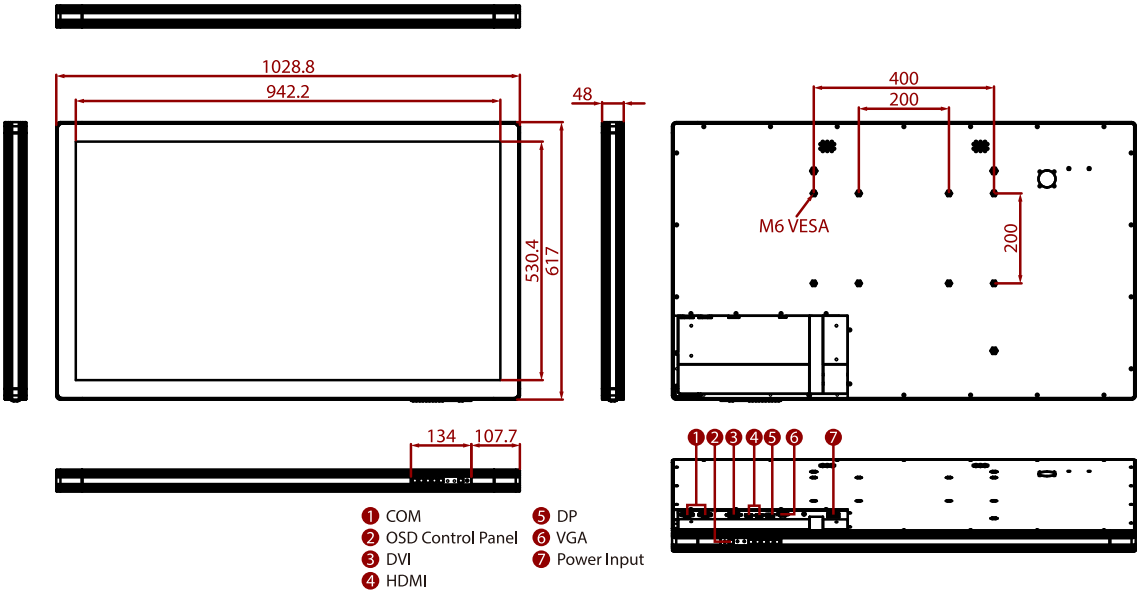


W32L100-MRA1FP *Unit: mm*



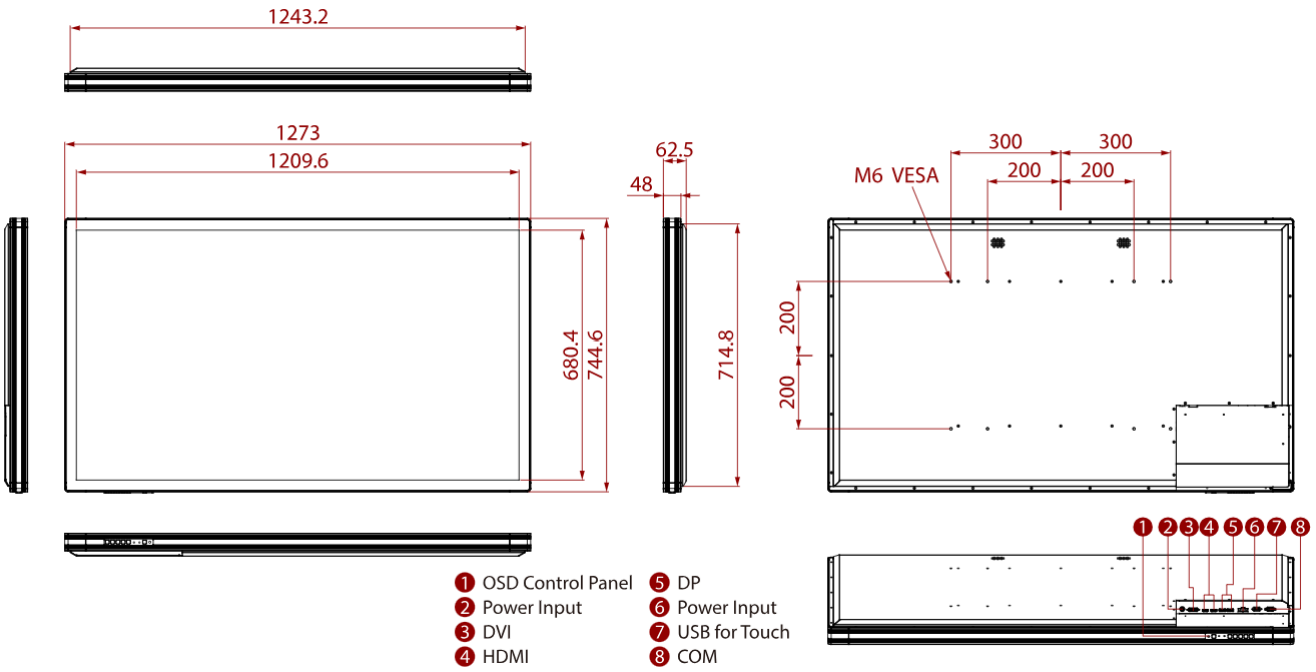
W43L100-MRA2FP

Unit: mm



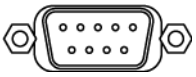
W55L100-MRA1FP

Unit: mm



1.5 Connectors

Display input and output connectors are located on the bottom side. Notice that input and output connectors may vary by product size and specifications.

Item	Description
	**Terminal Block** – Connects computer to source of power.
	**USB for Touch** - Connects USB for touch capabilities.
	**VGA (RGB)** –Transmits video from a PC to a display. *Example: A notebook PC to a display.*
	**HDMI** –Transmits and protects copyrighted digital video and audio. *Example: An HD ready TV to a display.*
	**DVI** – Transmits video from a PC to a display. *Example: A notebook PC to a display.*
	**Display Port** – Transmits a video signal from a PC to a display. *Example: A TV to a display.*
	**RS232 for Remote Control** –For remote control. *Example: A remote controller.*
	**Audio (Green)** – Transmits audio signal audio-in. *Example: A sound system to a display.*

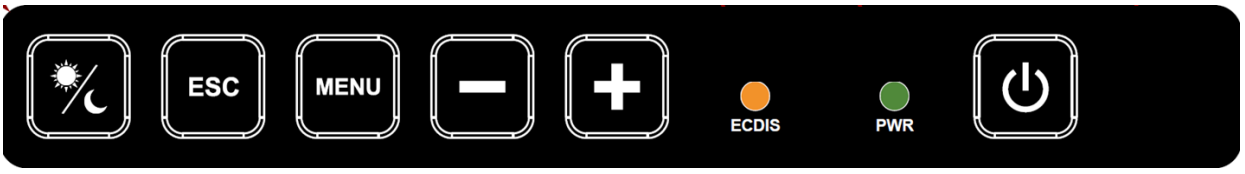
1.6 OSD Control Panel

1.6.1 OSD Control Panel Location

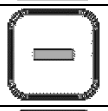
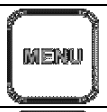
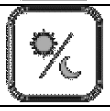
The location of the OSD control panel may vary by model. Please refer to product datasheet for more details.

1.6.2 Control Buttons

OSD control panel varies by product specifications. Refer to a product datasheet to check the OSD control panel type of a particular model.



Buttons

Icon	Function
	Power switch
	Brightness/Volume increase, select up
	Brightness/Volume Decrease, select Down
	Select right / Call main OSD menu / Enter
	Select left / Exit / Auto adjustment
	ECDIS Mode Change

Power LED Indicators

Description	Function
Power	Lights up in "Green" when the monitor turn on

ECDIS LED Indicators

Description	Function
ECDIS Mode	Lights up "Orange" when the device in ECDIS Mode (DAY/DUSK/NIGHT)

Chapter 2: Installation

This chapter provides hardware installation instructions and mounting guide for all available mounting options. Pay attention to cautions and warning to avoid any damages

2.1 Wiring Requirements

The following common safety precautions should be observed before installing any electronic device:

- Strive to use separate, non-intersecting paths to route power and networking wires. If power wiring and device wiring paths must cross make sure the wires are perpendicular at the intersection point.
- Keep the wires separated according to interface. The rule of thumb is that wiring that shares similar electrical characteristics may be bundled together.
- Do not bundle input wiring with output wiring. Keep them separate.
- When necessary, it is strongly advised that you label wiring to all devices in the system.
- Do not run signal or communication wiring and power wiring in the same conduit. To avoid interference, wires with different signal characteristics (i.e., different interfaces) should be routed separately.
- Be sure to disconnect the power cord before installing and/or wiring your device.
- Verify the maximum possible current for each wire gauge, especially for the power cords. Observe all electrical codes dictating the maximum current allowable for each wire gauge.
- If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

Be careful when handling the unit. When the unit is plugged in, the internal components generate a lot of heat which may leave the outer casing too hot to touch.

2.2 Mounting Guide

The Display can be applied for several different installation methods, including panel mount, VESA mount. Refer to sub-sections below for more details.

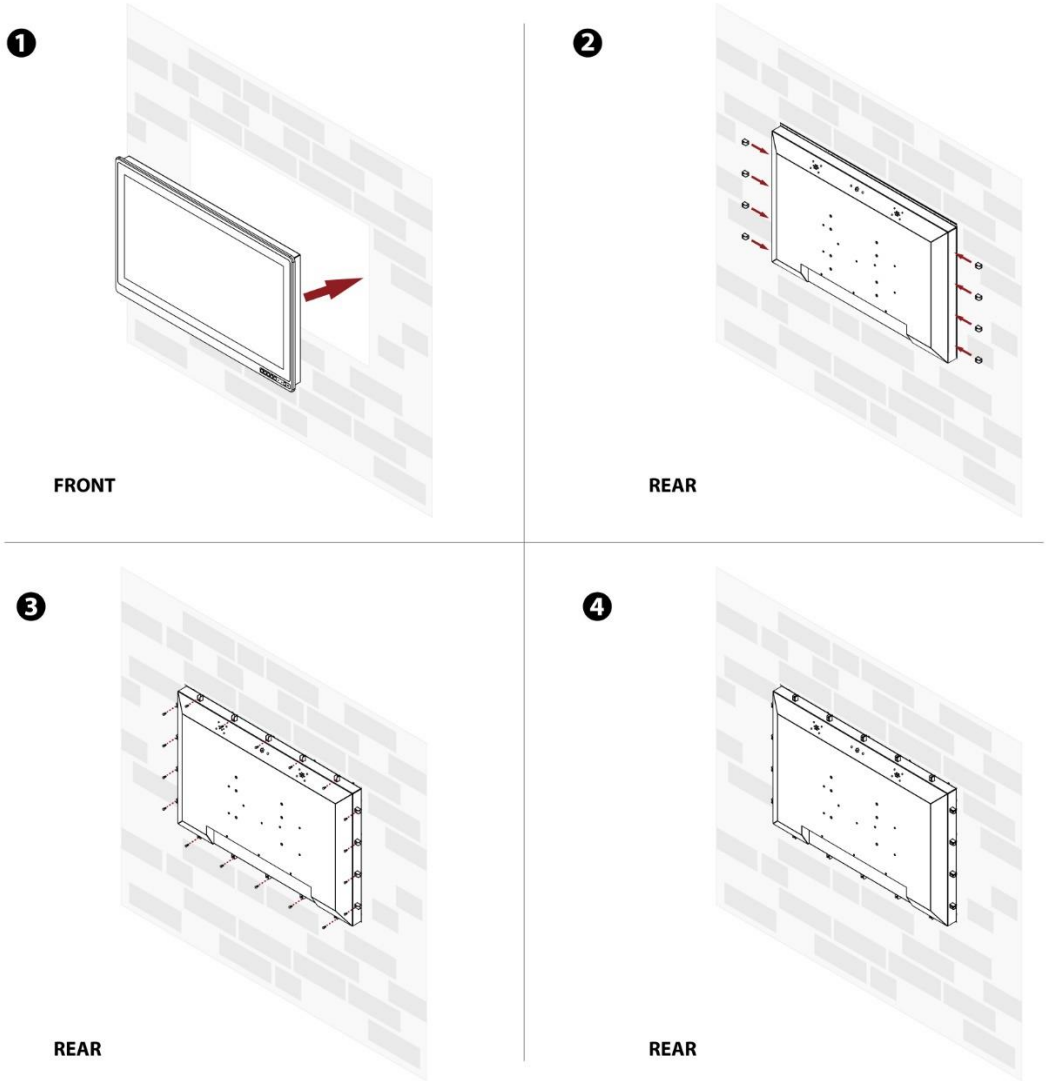
Caution Follow mounting instructions and use recommended mounting hardware to avoid the risk of injury.
Attention Suivez les instructions de montage et d'utilisation recommandé le matériel de montage pour éviter le risque de blessure.

2.2.1 Panel Mount

The 4K Marine Display comes with clamp mounts that enable you to install the unit onto a wall (where space has been cut out to accommodate the rest of the hardware).

Installation Instruction

1. Make a cutout on the fixture (ex. wall) according to the cutout dimensions of the display. Based on the drawing, mark screw holes on a front side of the fixture. Place display on the fixture from the rear side.
2. Install mounting clamps to its location all around the perimeter of the display.
3. Use electric screwdriver to fasten M3 screws from the front side.
4. You complete the installation. Please connect all the peripherals if needed.

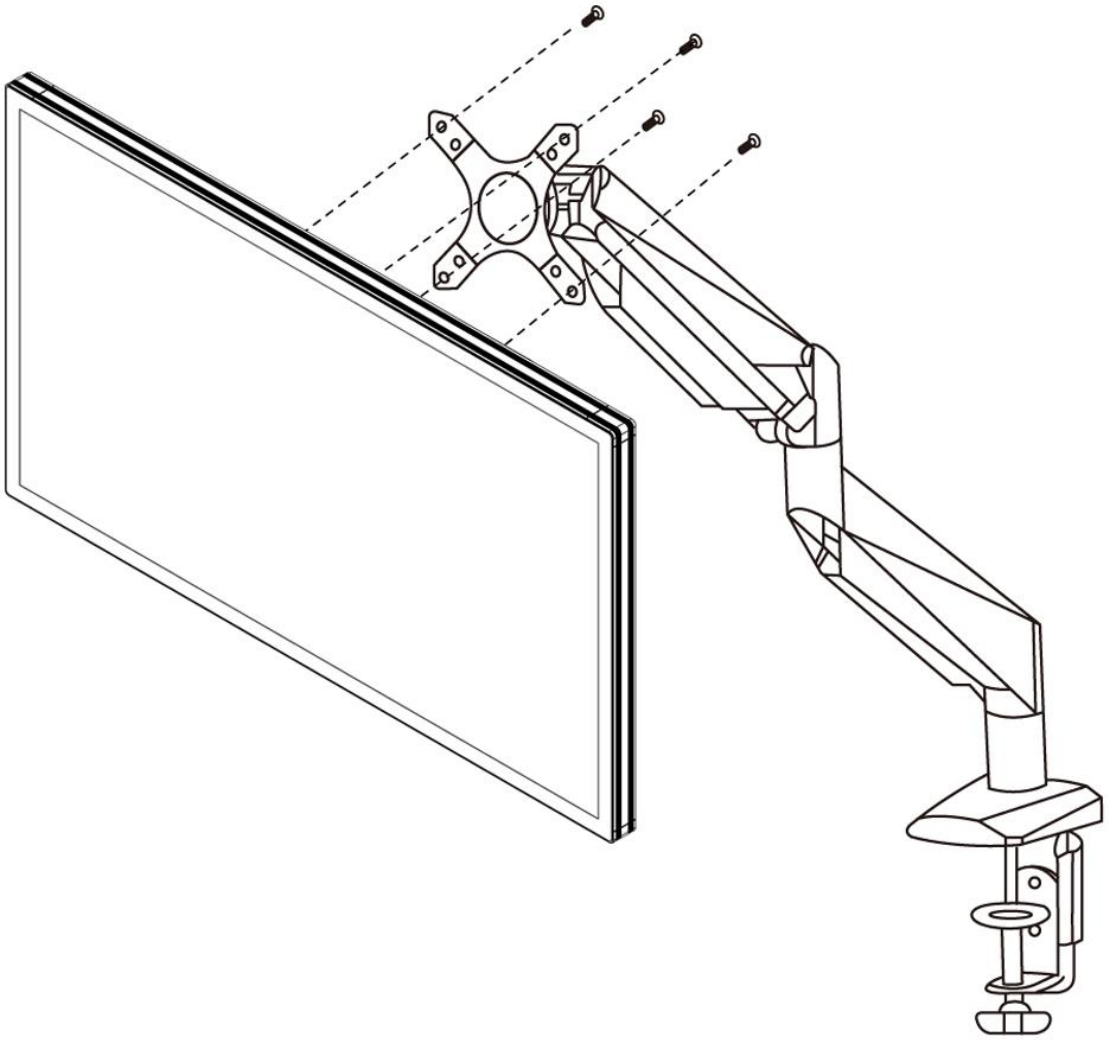


2.2.2 VESA Mount

4K Marine Display comes with VESA mount holes for mounting.

Installation Instruction:

1. Screw VESA bracket to the fixture (ex. swing arm) with four VESA screws.
2. Place the device on VESA bracket.



Note: The VESA stand and mounting kit are not provided by Winmate.

2.3 Cable Mounting Considerations

For a nice look and safe installation, make sure cables are neatly hidden behind the device.

Caution Observe all local installation requirements for connection cable type and protection level.
Attention Suivre tous les règlements locaux d'installations, de câblage et niveaux de protection.

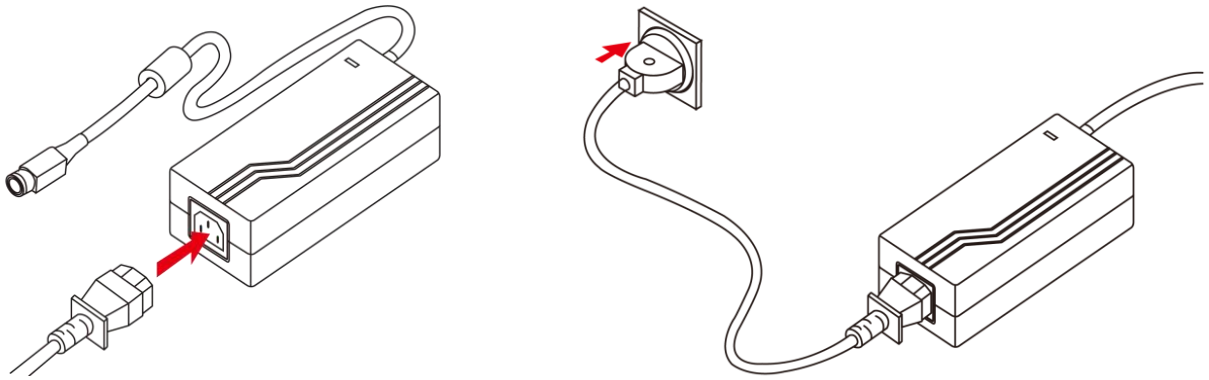
Caution Turn off the device and disconnect other peripherals before installation.
Attention Éteindre l'appareil et débrancher tous les périphériques avant l'installation.

2.4 Connecting Power

This section provides information on how to use connectors on the 4K Marine Display. Be cautious while working with these modules. Please carefully read the content of this chapter in order to avoid any damages.

Installation instruction:

1. Connect the AC cord to the AC IN terminal on the AC adaptor.
2. Connect the DC OUT terminal of the AC adaptor to the DC IN terminal on the monitor.
3. Align the notch on the cord connector with the guiding groove and plug it in.
4. Connect the AC cord plug to the power outlet.



Notice that the type of connector varies based on your order.

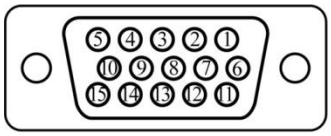
2.5 Connecting Peripherals

The panel control port is designed for monitors that work with a variety of compatible video sources. Due to the possible deviations between these signal sources, you may have to make adjustments to the monitor settings from the OSD menu when switching between these sources.

2.5.1 VGA Connector

The 4K Marine Display Series uses standard 15pin D-sub connector. Plug 15-pin VGA signal cable to the VGA connector in the rear of motherboard, and plug the other end to the monitor. Secure cable connectors with hexagonal copper pillars M3x4mm.

Pin assignment and signal names of VGA connector

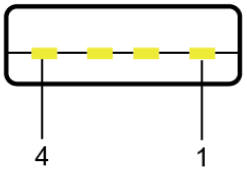


Pin №	Signal Name	Pin №	Signal Name
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	AGND
7	AGND	8	AGND
9	VGA_5V	10	GND
11	NC	12	DDCSDA
13	H Sync	14	V Sync
15	DDCSCL		

2.5.2 USB Connector for Touch

Use USB connector for touch capabilities.

Pin assignment and signal names of USB connector for touch

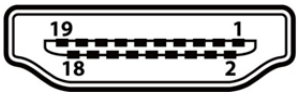


Pin No.	Signal Name	Pin No.	Signal Name
1	+5V	2	Data-
3	Data+	4	GND

2.5.3 HDMI Connector

Plug HDMI signal cable to the HDMI connector on the rear side of PC system, and plug the other end to the monitor.

Pin assignment and signal names of HDMI connector



Pin №	Signal Name	Pin №	Signal Name
1	HDMI_RX2+	2	GND
3	HDMI_RX2-	4	HDMI_RX1+
5	GND	6	HDMI_RX1-
7	HDMI_RX0+	8	GND
9	HDMI_RX0-	10	HDMI_RXC+
11	GND	12	HDMI_RXC-
13	HDMI_CON_CEC	14	NC
15	HDMI_CON_SCL	16	HDMI_CON_SDA
17	GND	18	+5V_HDMI
19	HDMI_CON_HP		

2.5.4 DVI Connector

Use DVI cable to connect your TFT LCD display to the external PC system. Fasten cable connectors with screws.

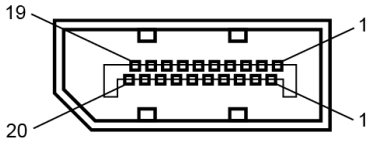
Pin assignment and signal names of DVI connector

Pin №	Signal Name	Pin №	Signal Name
1	TMDS2-	2	TMDS2+
3	GND	4	TMDS 4-
5	TMDS4+	6	DVI_SCL
7	DVI SDA	8	NC
9	TMDS1-	10	DVI_RX1+
11	GND	12	TMDS 3-
13	TMDS3+	14	+5V
15	GND	16	DVI_CON_HP
17	TMDS0-	18	TMDS0+
19	GND	20	TMDS5-
21	TMDS5+	22	GND
23	DVI_CLKP	24	DVI_CLKN
C1	NC	C2	NC
C3	NC	C4	NC
C5	NC		

2.5.5 Display Port Connector

Use Display Port cable to connect your TFT LCD display to the external PC system.

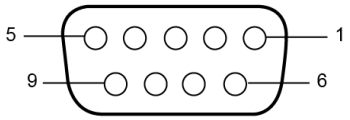
Pin assignment and signal name of Display Port connector



Pin No.	Signal Name	Pin No.	Signal Name
1	Lane 0 P	2	GND
3	Lane 0 N	4	Lane 1 P
5	GND	6	Lane 1 N
7	Lane 2 P	8	GND
9	Lane 2 N	10	Lane 3 P
11	GND	12	Lane 3 N
13	GND	14	GND
15	AUX P	16	GND
17	AUX N	18	Hot Plug
19	Return	20	DP_PWR

2.5.6 RS232 Connector for Remote Control

Use RS232 cable to connect your TFT LCD display to remote control.
Pin assignment and signal name of RS-232 connector for remote control



Pin No.	Signal Name	Signal Name
1	DCD	NC (no connection)
2	RXD	Reception data
3	TXD	Transmission data
4	DTR	Data terminal ready
5	GND	GND
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Short circuit at pin 7 on the display
9	RI	NC (no connection)

Chapter 3: Operating the Device

In this chapter you will find instructions on how to operate the display.

3.1 Turning on the System

To turn on the system:

1. Connect the power adapter cable to the DC IN of the display.
2. Connect the power cord to the power adapter.
3. Connect the power cord to a power outlet.
4. Press the power button located on the OSD control panel on the Front to turn on the system.

Notice that the type of connector varies based on your order.

3.2 OSD Menu Navigation

The OSD menu varies based on your OSD control panel.

For 5 Key OSD Control Panel

OSD Icon	Sub-menu	Settings	Note
BRICONTRAST	**BRIGHTNESS**	**slider bar**	Default 50
	Use to adjust the screen's brightness. Range 0 to 100		
	CONTRAST	**slider bar**	Default 50
	Use to adjust the screen's contrast. Range 0 to 100		
POSITION	**H POSITION**	**slider bar**	
	Use to adjust the image to the left or right on the screen. Range 0 to 100		
	V POSITION	**slider bar**	
	Use to adjust the image up or down on the screen. Range 0 to 100		

IMAGE	**AUTO**	**Select and execute**	
	Use to choose the best settings for the current input signal		
	CLOCK	**slider bar**	
	Use to adjust the value of horizontal image. Range 0 to 100		
	PHASE	**slider bar**	
	Use to adjust the phase control (Phase adjustment may be required to optimize the display quality)		
	WHITE BALANCE	**Select and execute**	
	Use to set RGB signal voltage level		
OSD Icon	**Sub-menu**	**Settings**	**Note**
COLOR	**USER**	**R.G.B slider bar**	Default USER
	Choose RED/GREEN/BLUE to set value of color temperature brightness to suit your own preference		
	9300K	**Select and execute**	
	Use to set value of display for the CIE coordinate 9300 color temperature		
	6500K	**Select and execute**	
	Use to set value of display for the CIE coordinate 6500 color temperature		
	ADC RIGHTNESS	**slider bar**	Default 50
	Set value of display for ADC Brightness. Range 0 to 100		
GAMMA	**GAMMA 0**	**Select and execute**	Default GAMMA0
	Choose the parameter of GAMMA 0 as default setting.		
	GAMMA 1	**Select and execute**	
	Choose the parameter of GAMMA 1 as default setting.		
	GAMMA 2	**Select and execute**	
	Choose the parameter of GAMMA 2 as default setting.		
OP OPTION	**VR Brightness**	**ON/OFF**	Default OFF (Optional Function)
	Choose the brightness control mode by VR control		
	Volume	**slider bar**	Default 10
	Use to set value of Volume		
	Speaker	**ON/OFF**	Default OFF
	Use to set value of Volume Speaker		
CHANNEL	**AUTO SCAN**	**Select and execute**	Default mode
	Auto detect the input source		
	ANALOG	**Select and execute**	
	Switch the setting of signal input to Analog mode		
	HDMI/ DVI/ DP	**Select and execute**	Optional
	Switch the setting of signal input to HDMI mode		
RECALL	**YES**	**Select and execute**	
	Recall the factory default setting		
	NO	**Select and execute**	
	Return to main menu		
EXIT	**YES**	**Select and execute**	
	Exit the OSD menu		
	NO	**Select and execute**	
	Return to main menu		

3.3 Troubleshooting Guide

If your display fails to operate correctly, check the following chart for possible solution before calling for repairs:

Condition	Check Point
The picture does not appear	✓ Check if the signal cable is firmly seated in the socket. ✓ Check if the Power is ON at the computer ✓ Check if the brightness control is at the appropriate position, not at the minimum.
The screen is not synchronized	✓ Check if the signal cable is firmly seated in the socket. ✓ Check if the output level matches the input level of your computer. ✓ Make sure the signal timings of the computer system are within the specification of the display. ✓ If your computer was working with a CRT display, you should check the current signal timing and turn off your computer before you connect the VGA Cable to this display.
The position of the screen is not in the center	✓ Adjust the H-position, and V-position, or Perform the Auto adjustment.
The screen is too bright (too dark)	✓ Check if the brightness or contrast control is at the appropriate position, not at the Maximum (Minimum).
The screen is shaking or waving	✓ Perform the Auto adjustment. ✓ Moving all objects which emit a magnetic field such as motor or transformer, away from the display. ✓ Check if the specific voltage is applied. ✓ Check if the signal timing of the computer system is within the specification of display.

If you are unable to correct the fault by using this chart, stop using your display and contact your distributor or dealer for further assistance.

Appendix

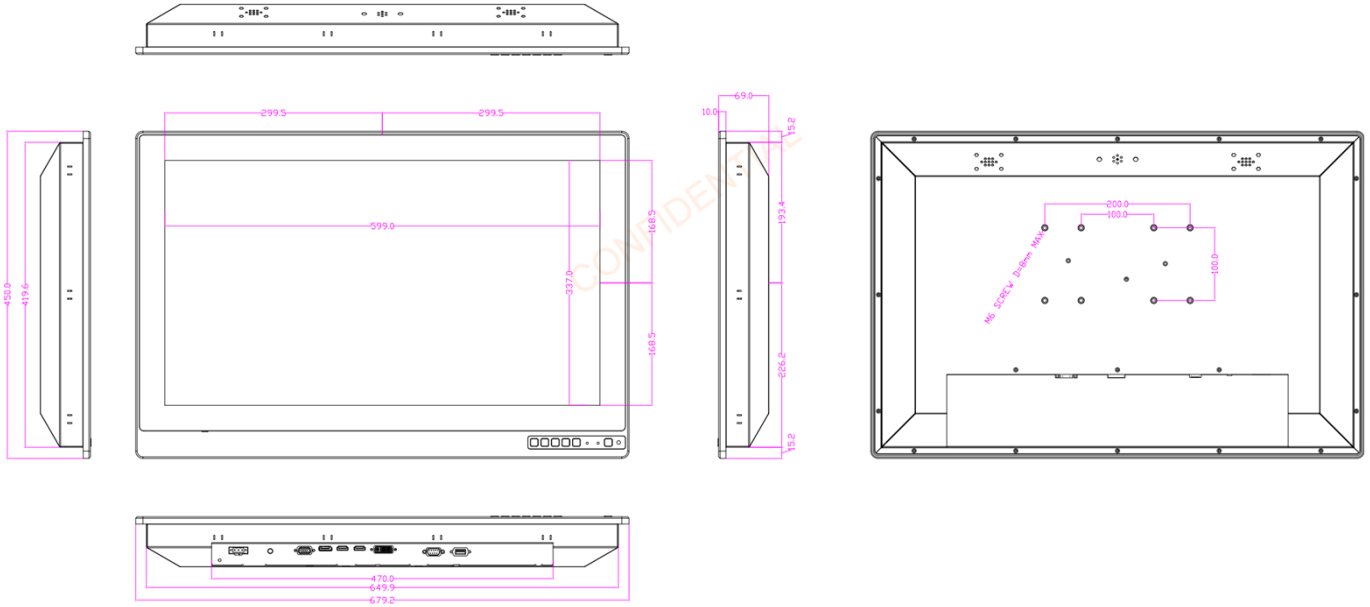
This chapter contains additional product information, including troubleshooting guide and frequency table

Appendix A: Product Dimensions

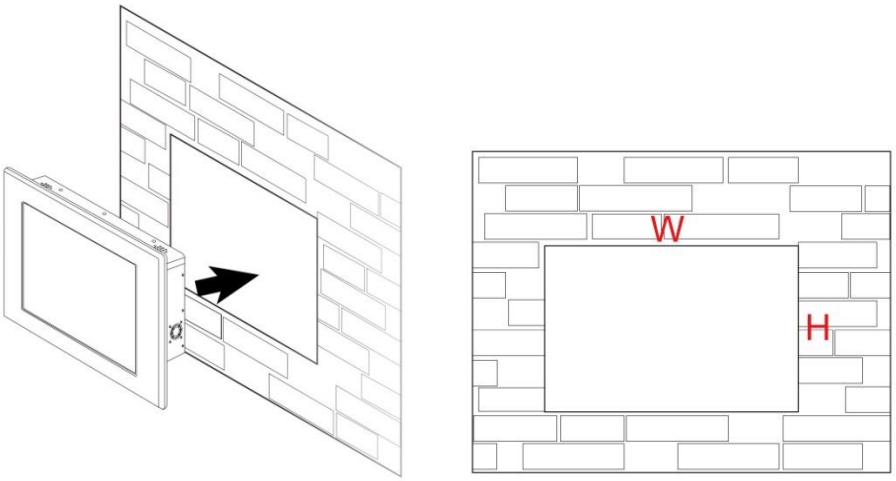
Model Name	Dimensions (W x H x D, mm)	Cutout (W x H, mm)	VESA (W x H, mm)
W27L100-MRA3FP	679.2 x 450 x 69 mm	655 x 430 mm	100 x 100, 200 x 100 mm
W32L100-MRA1FP	795 x 524 x 87 mm	770 x 500 mm	200 x 100, 200 x 200 mm
W43L100-MRA2FP	1028.8 x 617 x 48 mm	N/A	200 x 200, 400 x 200 mm
W55L100-MRA1FP	1273 x 744.6 x 62.5 mm	N/A	400 x 400, 600 x 400 mm

Product Mechanical Drawing

Unit: W x H x D, mm



Cutout



Notes

Contact Us

Winmate Inc.

No.111, Shing-De Rd.,
San-Chung District, New Taipei City 241458, Taiwan
Tel: +886-2-8511-0288
E-mail: sales@winmate.com.tw
Website: www.winmate.com

Winmate USA Inc.

2640 Matthews Street,
Smyrna, GA 30080, USA
Tel: +1-678-653-8800
E-mail: NASales@winmate.com.tw
Website: www.winmate-rugged.com

TTX Canada

150 Werlich Drive, Units 5&6
Cambridge, Ontario, N1T 1N6 Canada
Tel: +1-519-621-1881
E-mail: Sales@ttx.ca
Website: www.ttx.ca

TL Electronic GmbH

Bgm.-Gradl-Str. 1
85232 Bergkirchen-Feldgeding, Germany
Tel: +49 (0)8131 33204-0
E-mail: info@tl-electronic.de
Website: www.tl-electronic.de

北京京融电自动化科技有限公司
苏州办事处

215100 江苏省苏州市工业园区唯新路 69 号
一能科技园 3 号楼 206 室
Tel: +86-512-6826-6696/6829-6696
E-mail: sales@winmate.com.cn
Website: www.winmate.com.cn

Winmate JP Office/ HPC System Inc.

LOOP-X 8F,3-9-15 Kaigan,
Minato-ku, Tokyo 108-0022, Japan
Tel: +81-3-5446-5535
Fax: +81-3-5446-5550
Website: www.hpc.co.jp