OFM-21W00

21.5” Full-HD Open frame PCAP Touch Monitor

Quick Reference Guide

2nd Ed – 19 September, 2022

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Part No. E2017OM21A1R

Federal Communication Commission Interference Statement

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**

Notice:

(1) A Unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord by used.

(2) Use only shielded cables to connect I/O devices to this equipment.

(3) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65 and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When nearby persons has to be kept to ensure RF exposure compliance, in order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm.

WARNING

“CAUTION – Use suitable mounting apparatus to avoid risk of injury.”

“CAUTION – 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”

“CAUTION –Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.”

“CAUTION - Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.”

“WARNING – To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.”

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1. Getting Started

1.1 Safety Precautions

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.

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.

1.2 Packing List

- 1 x OFM-21W00 Industrial Touch Monitor

If any of the above items is damaged or missing, contact your retailer.

1.3 System Specifications

Board Specification	
Mother Board	ACC-ADBOARD-12R Optional DC to DC convert Board 9V to 36V(ACC-POWERBOARD-01R)
CPU	RTD2556T
CPU Cooler (Type)	Fanless
Power Supply	DC in
Adapter	ACC-ADP-060N-07R (AC/DC adapter 12V/5A 90 Plug Type)
Speaker	2 x Speaker(2W)
Other Component	OSD control board (OSD-5KEY-A001) Optional DC to DC converter Board 9V to 36V (PB-GL01) Optional Millitronic WiFi 6 Media Server Module
Panel	
LCD Panel	21.5" LVDS Panel, 1920*1080
LCD Control Board	Built in
B/L Inverter/Converter	LED driving board for D2626514G1PA
Touch Screen	21.5" PCAP Multi-Touch, 10 points
Touch Controller	EETI
External I/O	
USB Port	1 x USB type B for touch function
Video Port	1 x VGA, 1 xHDMI, 1 x DP input connectors
Audio Port	1 x Audio phone jack in
Wireless LAN Antenna	2 x Antenna Mounting with Dust Cover for Optional Millitronic WiFi 6 Media Server Module
Indicator Light	1 x LED (from OSD 5 keys)
Others	OSD key(5 keys)
Mechanical	
Power Type	12V DC in (optional 9~36V)
Power Connector Type	12V DC jack in (Option for wide voltage 9~36V DC jack & phoenix connector in)
Dimension	501.88 x 296.2 x 53.4 mm
Weight	4.1 Kg
Color	Silver
Fanless	Fanless
Reliability	

EMI Test	CE/FCC Class A
Vibration Test	Random Vibration Operation 1 Test PSD : 0.00454G²/Hz , 1.5 Grms 2 System condition : operation mode 3 Test frequency : 5~500 Hz 4 Test axis : X,Y and Z axis 5 Test time : 30 minutes per each axis 6 IEC60068-2-64 Test Fh 7 Storage : N/A Sine Vibration test (Non-operation) 1 Test Acceleration : 2G 2 Test frequency : 5~500 Hz 3 Sweep：1 Oct/ per one minute. (logarithmic) 4 Test Axis : X,Y and Z axis 5 Test time :30 min. each axis 6 System condition : Non-Operating mode 7. Reference IEC 60068-2-6 Testing procedures Package Vibration Test: 1 Test PSD : 0.026G²/Hz , 2.16 Grms 2 Test frequency : 5~500 Hz 3 Test axis : X,Y and Z axis 4 Test time : 30 minutes per each axis 5 IEC 60068-2-64 Test Fh
Mechanical Shock Test	1 Wave from : Half Sine wave 2 Acceleration Rate : 10g for operation mode 3 Duration Time : 11ms 4 No. of shock : Z axis 300 times 5 Test Axis : Z axis 6 operation mode 7 Reference IEC 60068-2-27 testing procedures Test Eb : Shock Test
Drop Test	Package drop test Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed Test Ea : Drop Test 1 Test phase : One corner, three edges, six faces 2 Test high : 96.5cm 3 Package weight : 5Kg 4 Test drawing

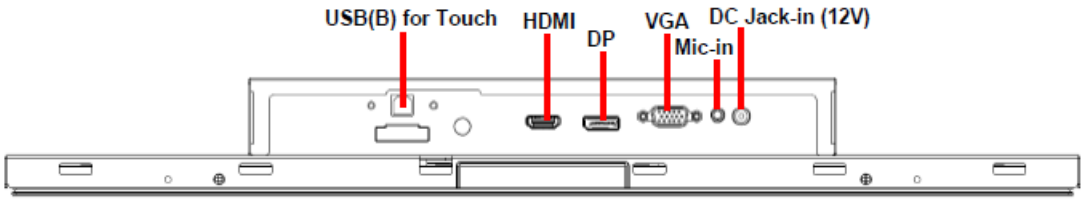
	4-feet drop resistance without package MIL-STD-810G
Operating Temperature	0°C ~ 50°C (32°F ~ 122°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)

Note: Specifications are subject to change without notice.

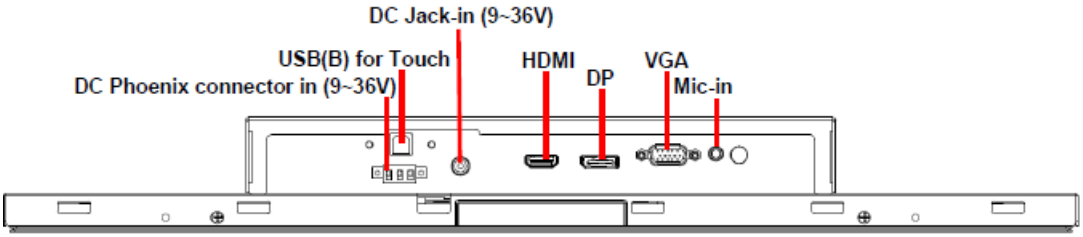
1.4 System Overview

1.4.1 Bottom View

12V DC-in (Default)



9~36V DC-in (Optional)



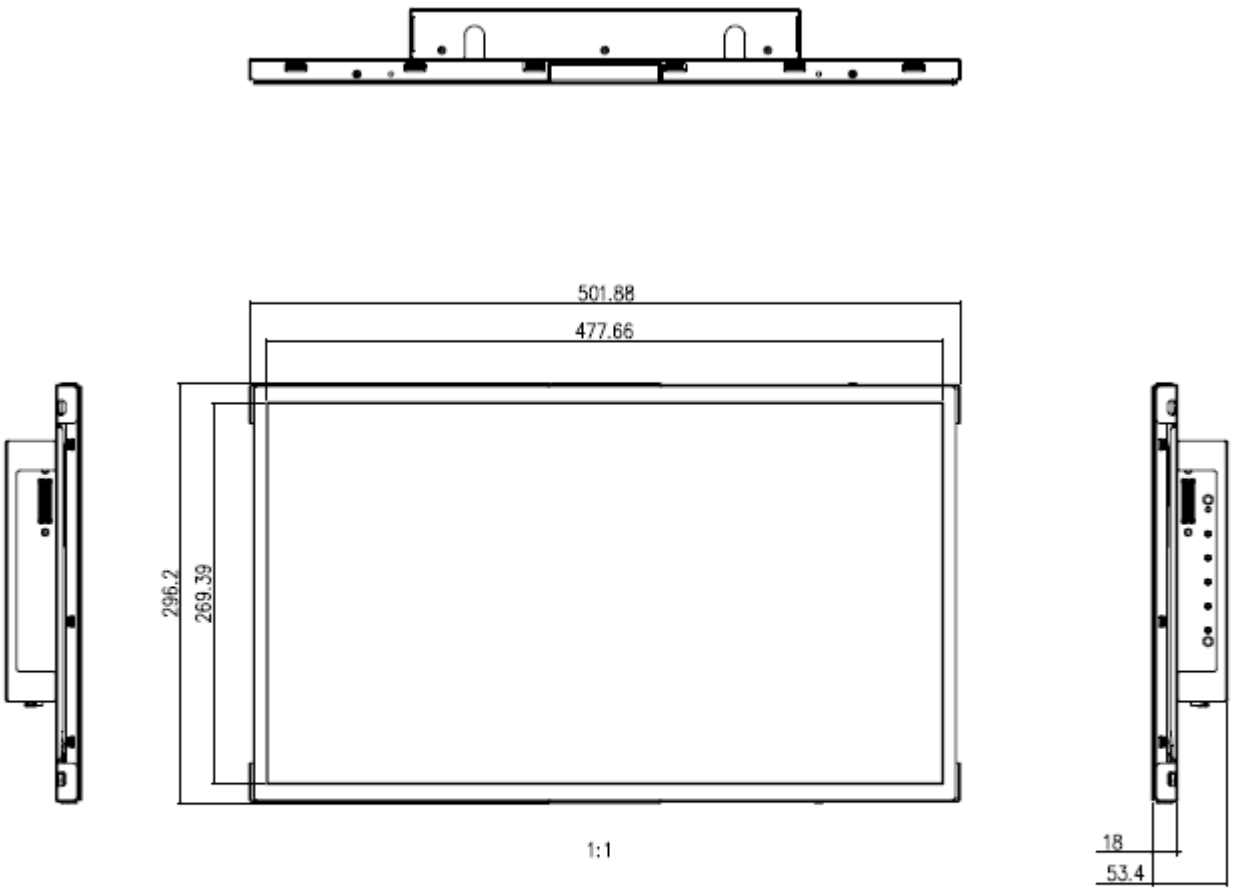
Note: Do not connect both power connector at the same time, it might cause damage to the device, only select (connect) one power source for your device.

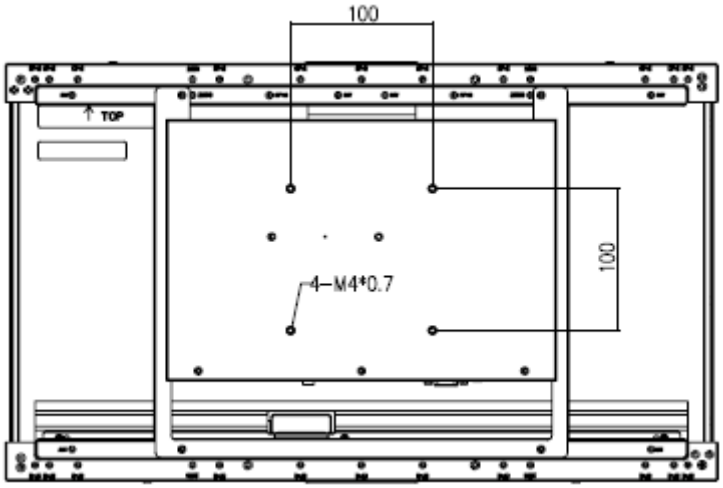
Connectors

Label	Function	Note
DP	DP connector	
HDMI	HDMI connector	
VGA	VGA connector	
USB(B) for Touch	USB(B) connector for Touch	
Mic-in	Mic-in audio jack	
DC Jack-in (12V)	DC power-in connector	
DC Jack-in (9~36V)	DC power-in connector (Optional)	
DC Phoenix connector in (9~36V)	DC power-in connector (Optional)	

1.5 System Dimensions

1.5.1 Front and Rear side



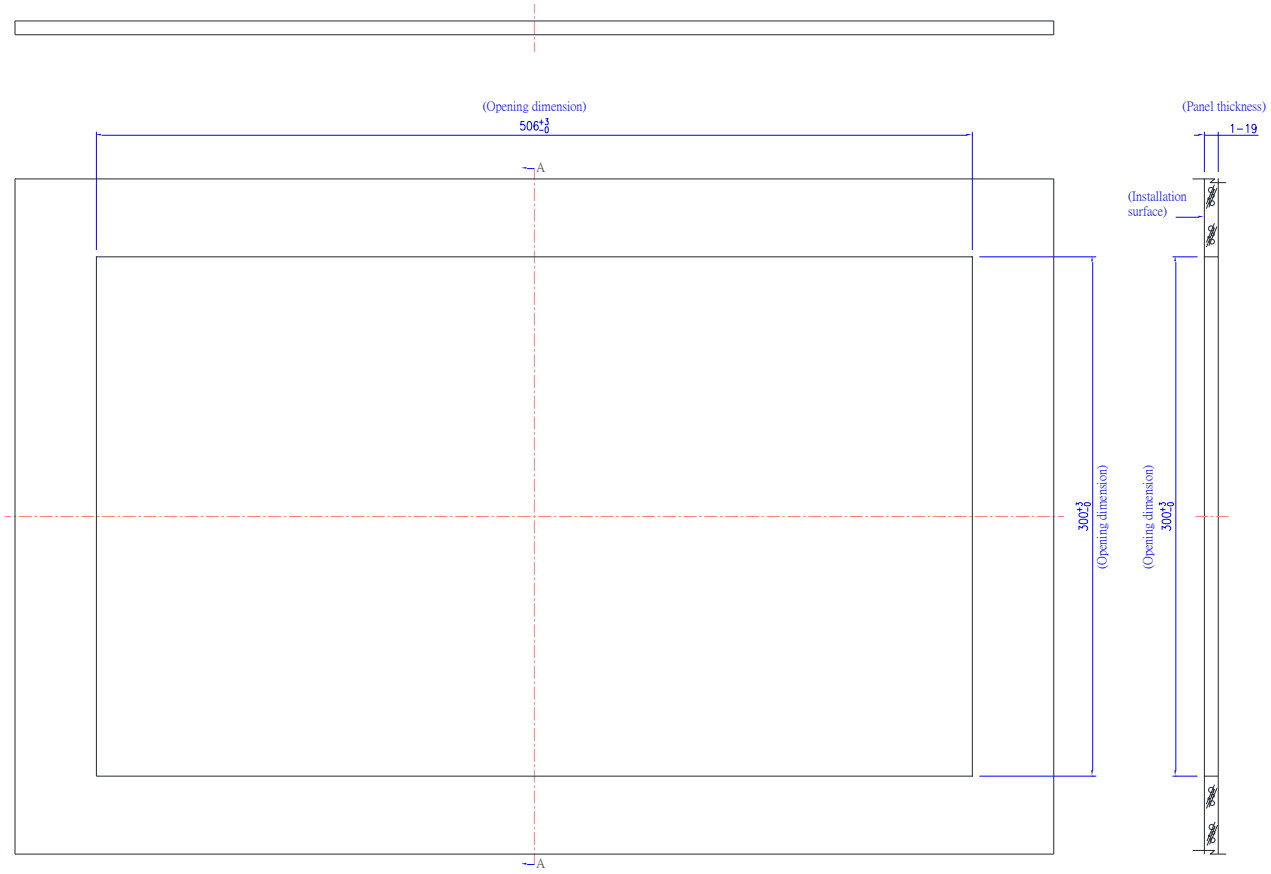


(Unit: mm)

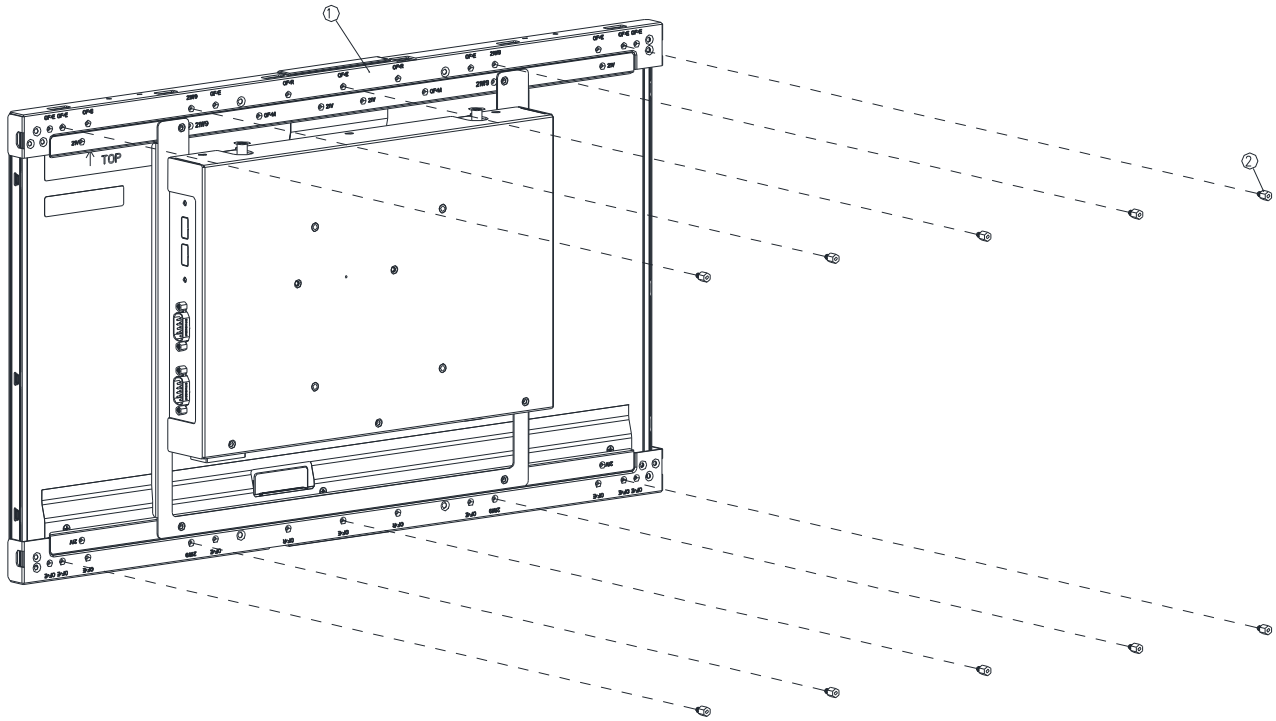
1.6 Panel Mounting

Panel mount is the solution for mounting OFM into the opening of wall (or cabinet).

The dimension of opening is as below:

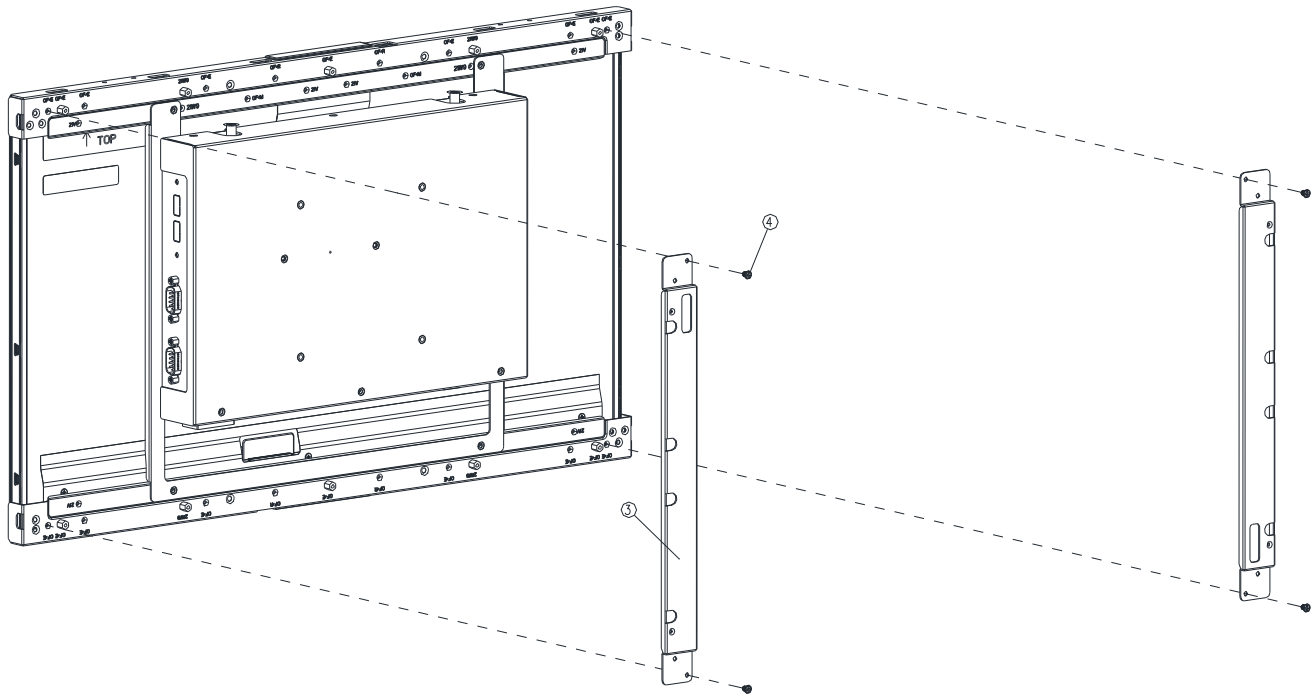


(Unit: mm)



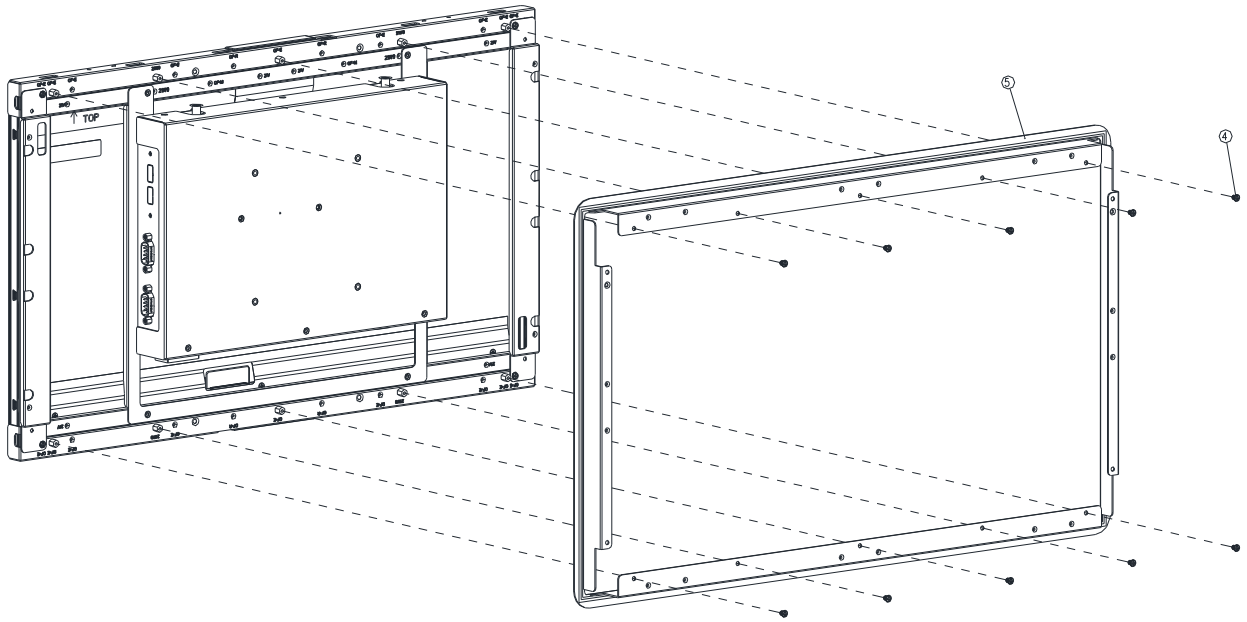
Step1. Insert and fasten 10 pcs Hexagon Studs on each side of the OFM-21W00 Panel Bracket.

2	Hexagon Stud	10
1	OFM-21W00	1
Item	Part Name	Quantity



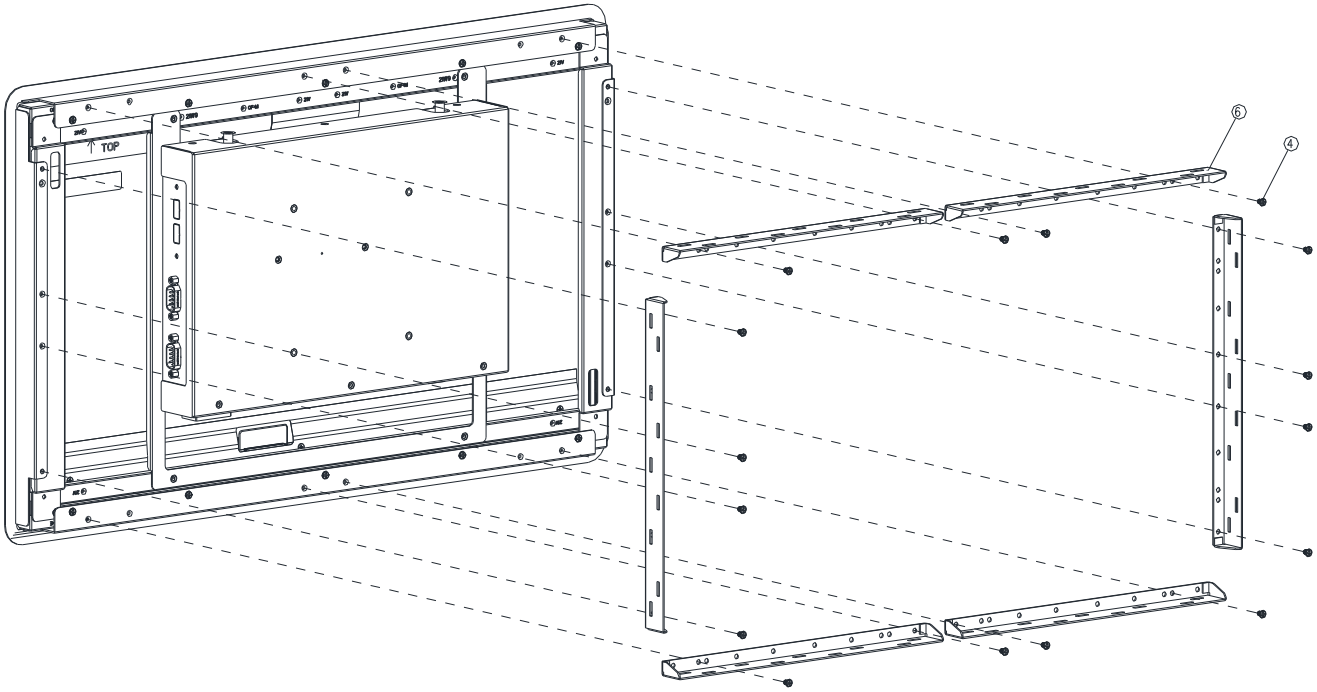
Step2. Assemble the 2pcs Bracket-RL on the left and right sides of the OFM-21W00 bracket by fastening 4 pcs screws on each side.

4	Screw	4
3	Bracket-RL	2
Item	Part Name	Quantity



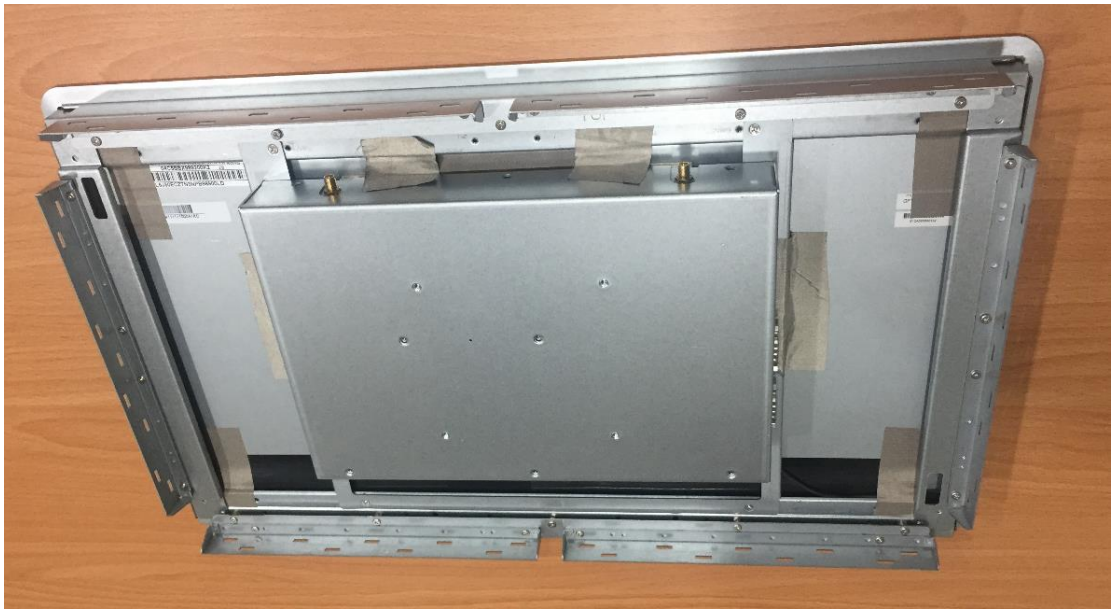
Step3. Assemble the Front Bracket to OFM-21W00 and fasten 10 pcs screws on the corresponding Hexagon Studs.

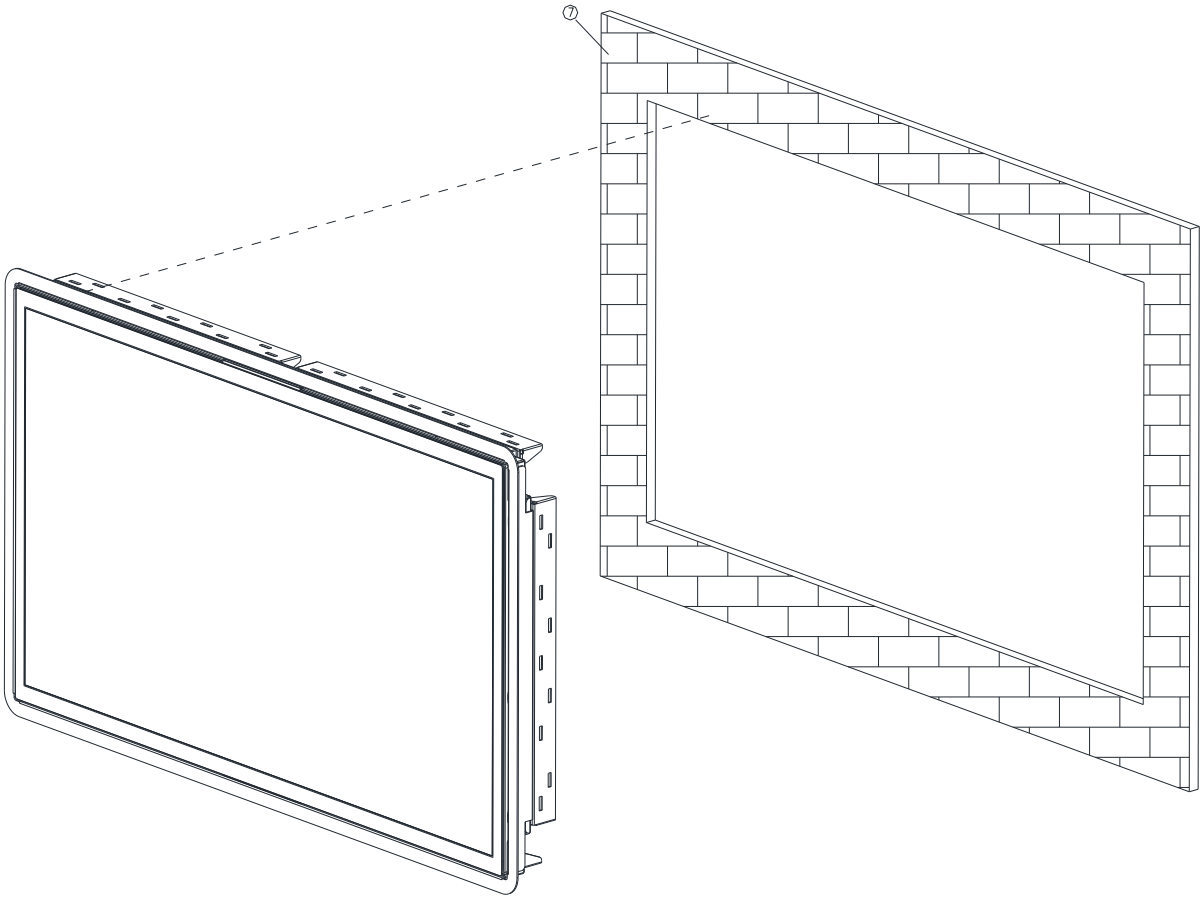
5	Front Bracket	1
4	Screw	10
Item	Part Name	Quantity



Step4. Assemble the 6pcs Panel kit Brackets on the Front Bracket and fasten the 16 pcs screws to the corresponding holes.

4	Screw	16
6	Panel kit Bracket	6
Item	Part Name	Quantity

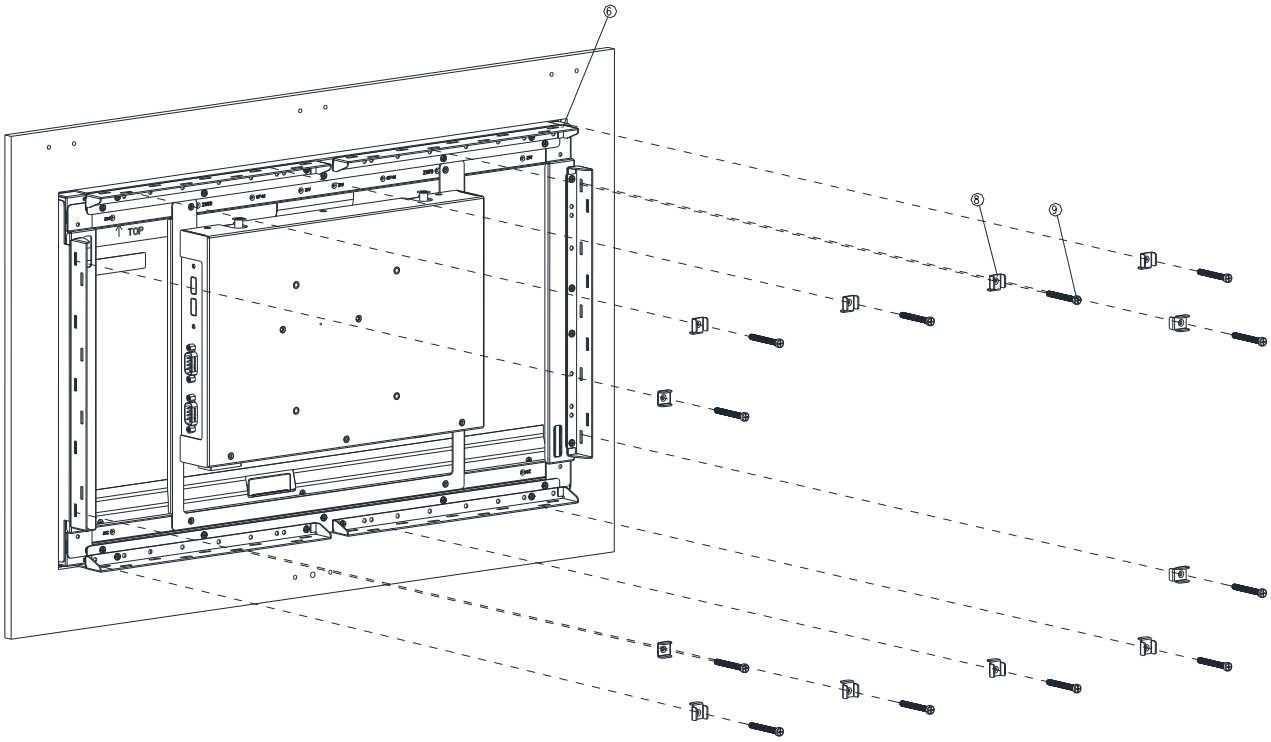




(outside the wall (or cabinet) opening)

Step5. Embed the OFM-21W00 semi-finished product into the wall (or cabinet) opening.

7	Wall	1
Item	Part Name	Quantity



(inside the wall (or cabinet))

Step6. Fasten the Panel mount screw*12 to the Panel mount kit bracket*12 (as shown in Figure 6-1), and then attach them to the Panel Kit Bracket*6 fixing slots.

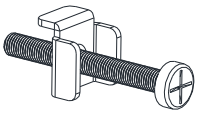
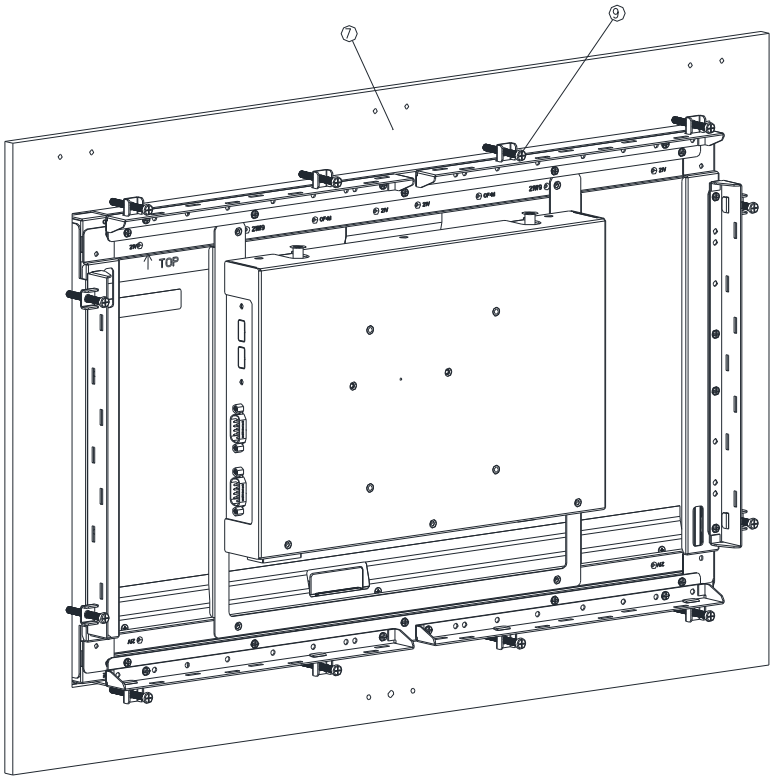


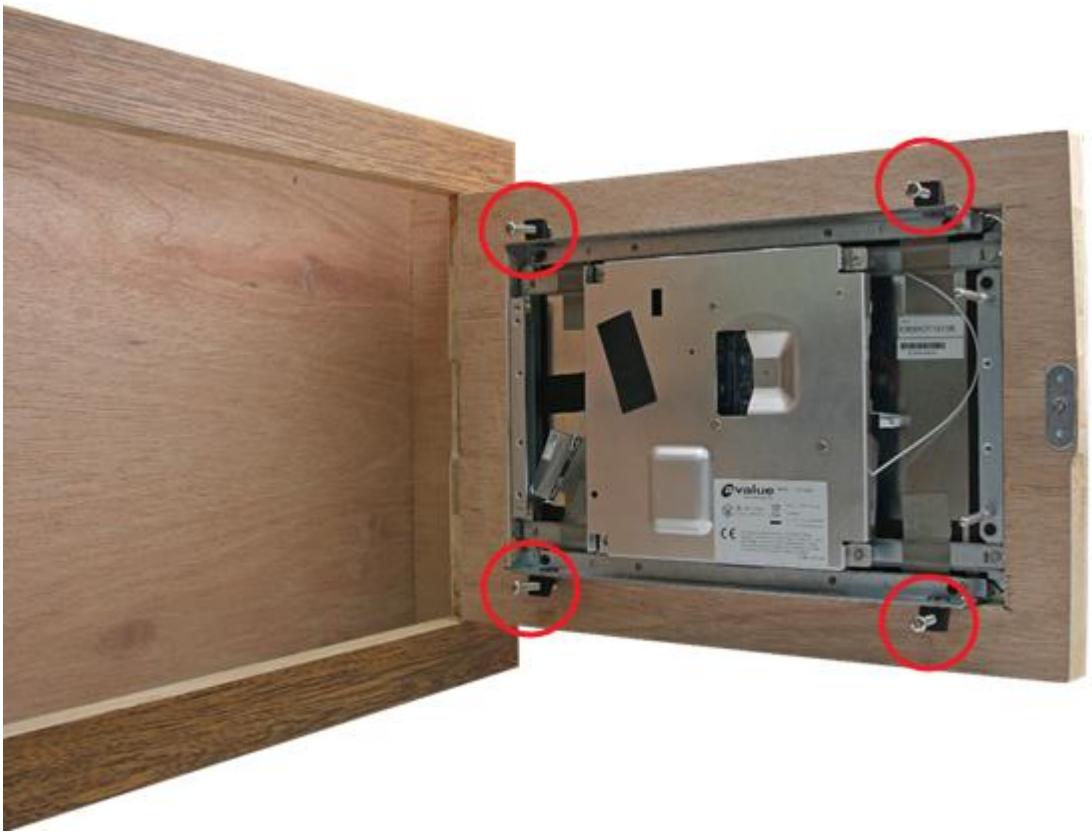
Figure 6-1

9	Panel mount Screw	12
8	Panel Mount Kit Bracket	12
6	Panel Kit Bracket	6
Item	Part Name	Quantity

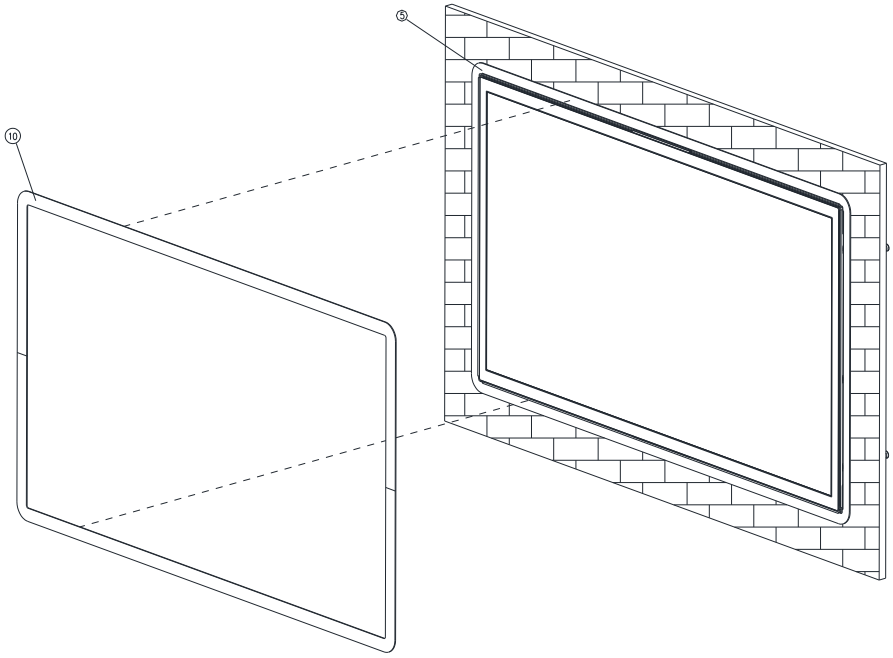


Step7. Fasten the Panel mount screw*12 against the wall, so that the entire module can be secured by the Panel mount screws and Panel mount kit brackets.

9	Panel mount Screw	12
7	Wall	1
Item	Part Name	Quantity

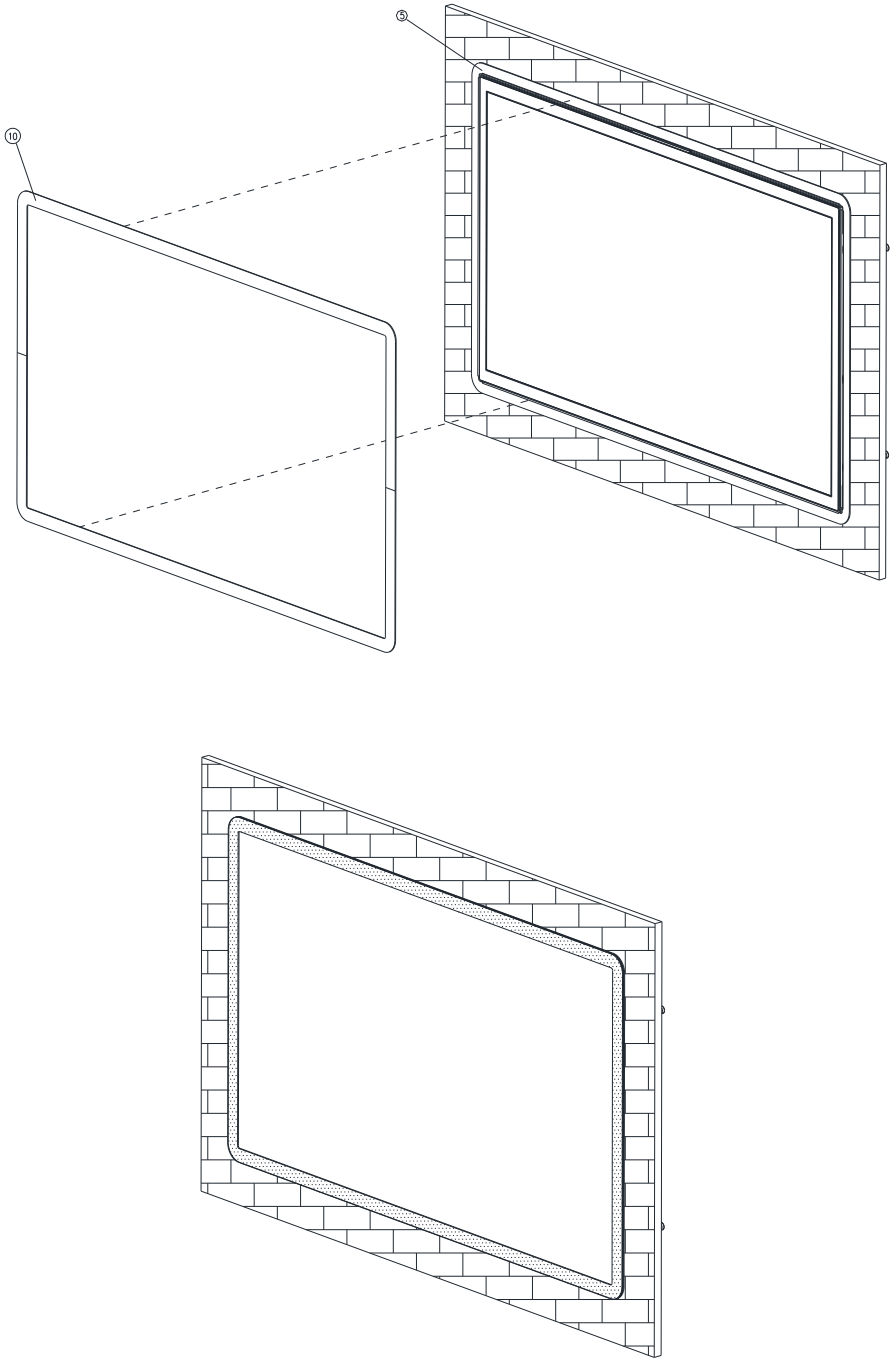


(The diagram is demonstrated by OFM-21W00, but the concept “the entire module can be secured by fastening the Panel mount screws against the wall” is the same)



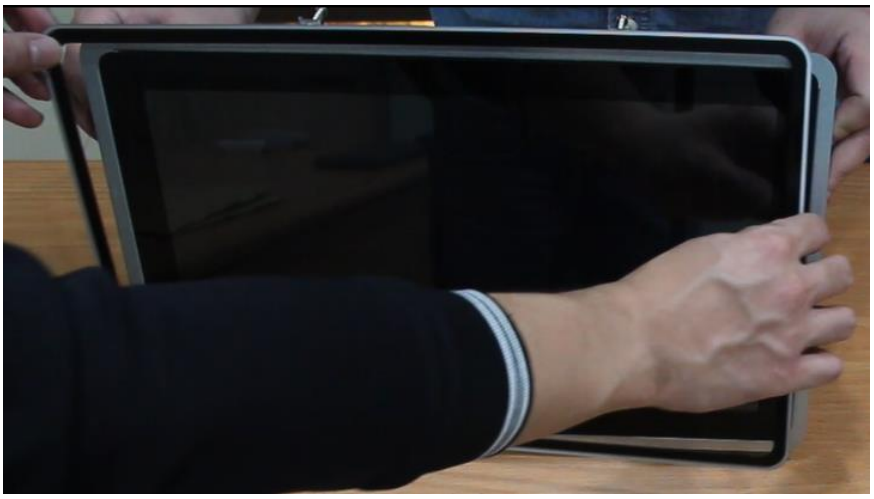
Step8. Paste the 2 pcs U Plates on the Front Bracket to complete installation.

10	U Plate	2
5	Front Bracket	1
Item	Part Name	Quantity



Step9. Paste the Decoration Plate on the U Plate to complete installation.

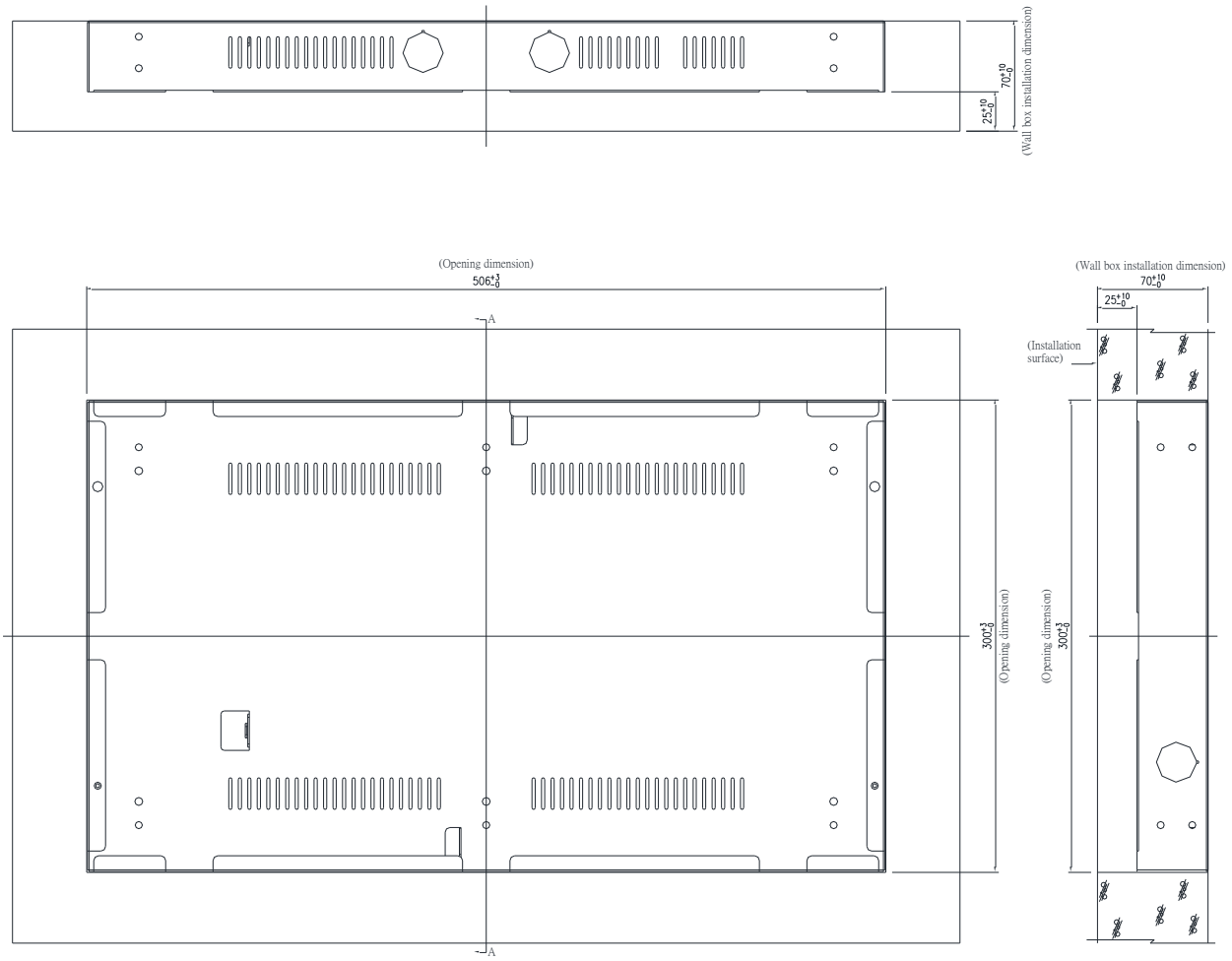
11	Decoration Plate	1
10	U Plate	2
Item	Part Name	Quantity



1.7 Wall Mounting

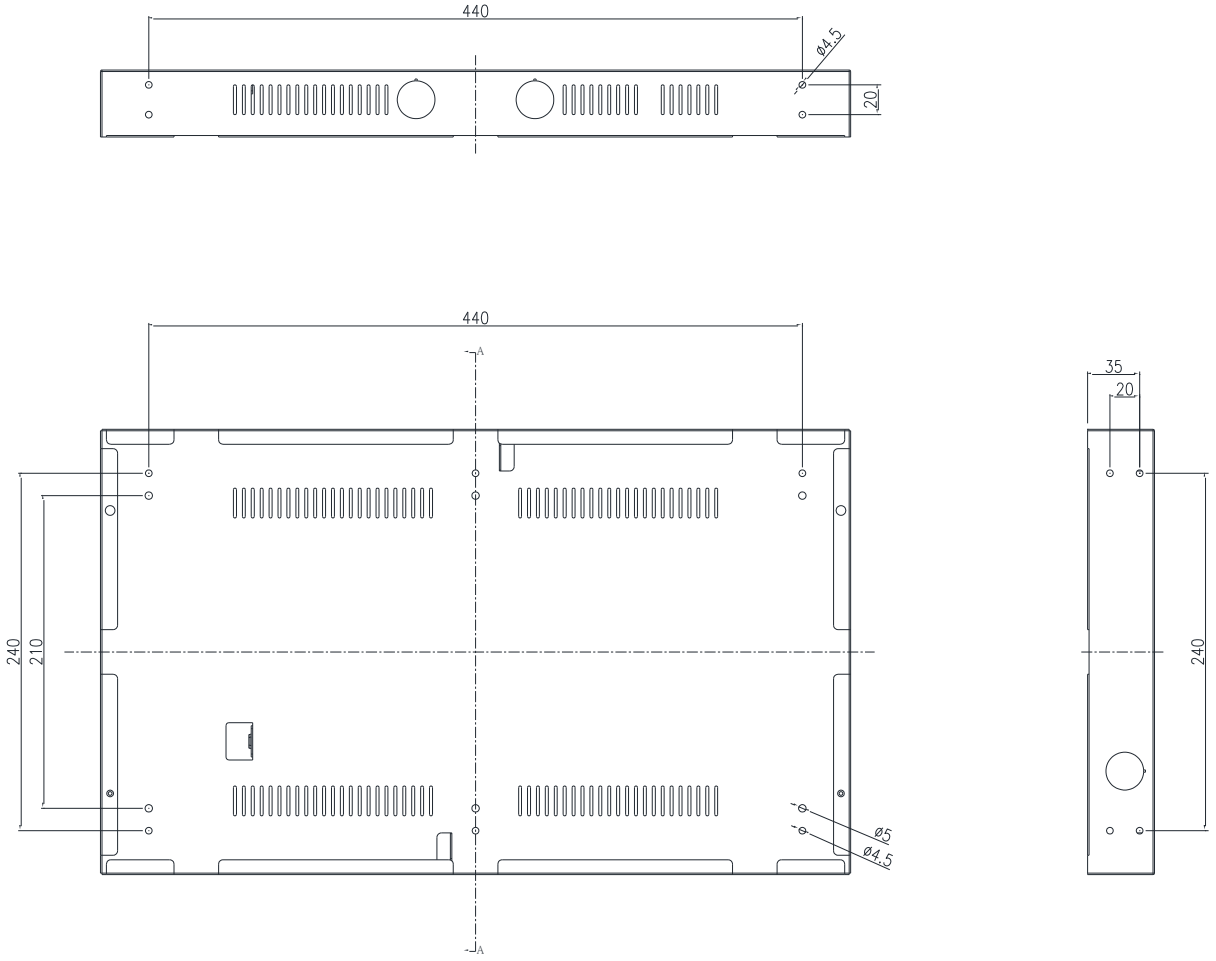
Wall mount is the solution for mounting OFM into the wall.

Size of the opening:

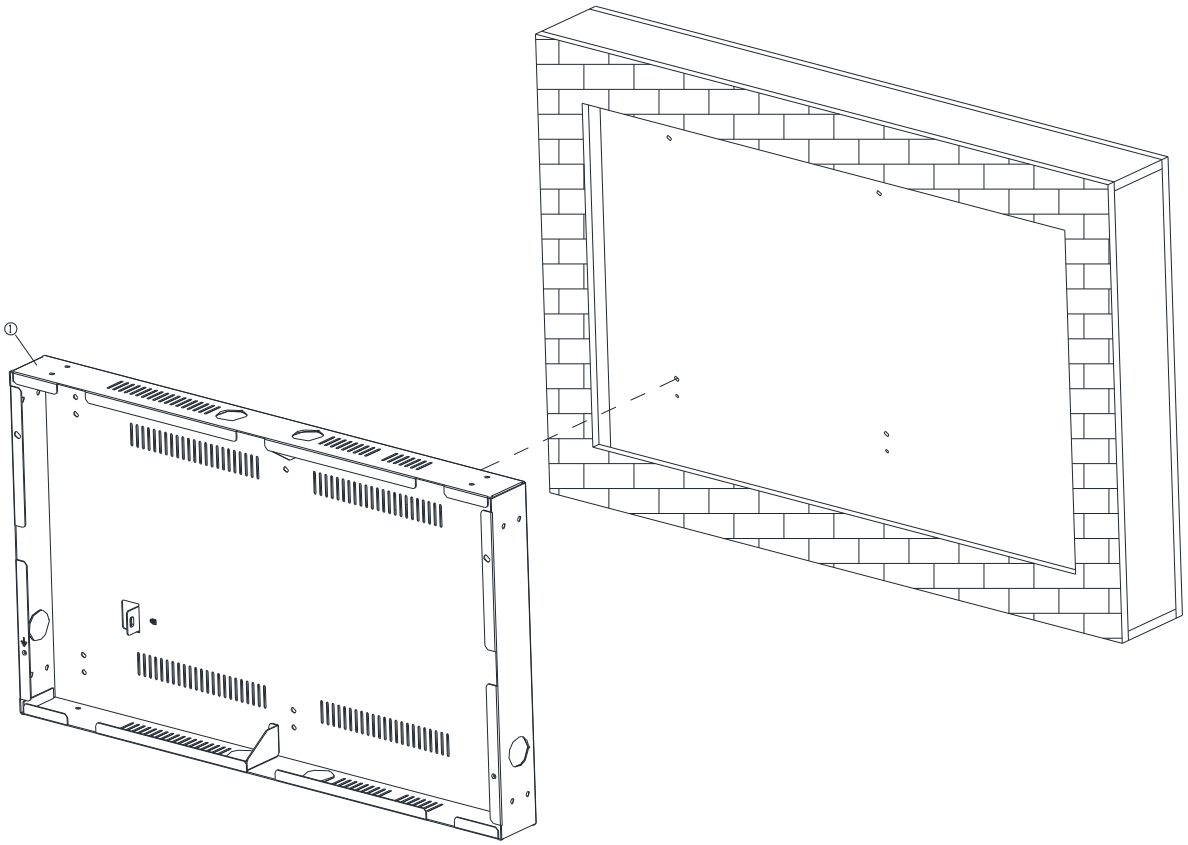


(Unit: mm)

Screw hole location:

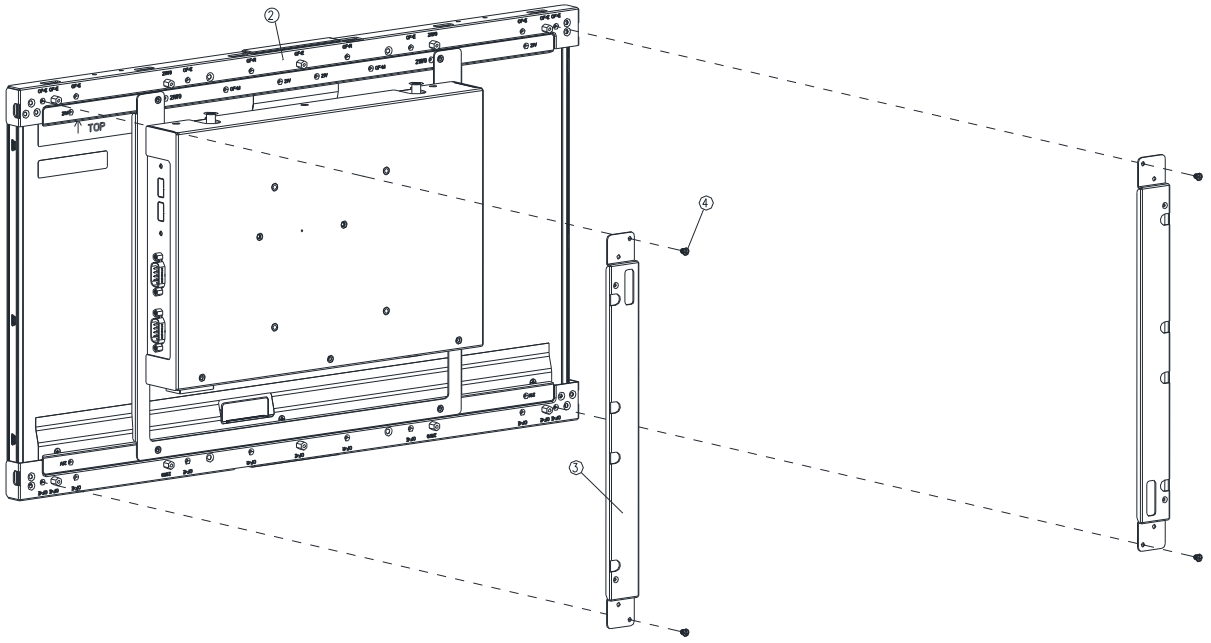


(Unit: mm)



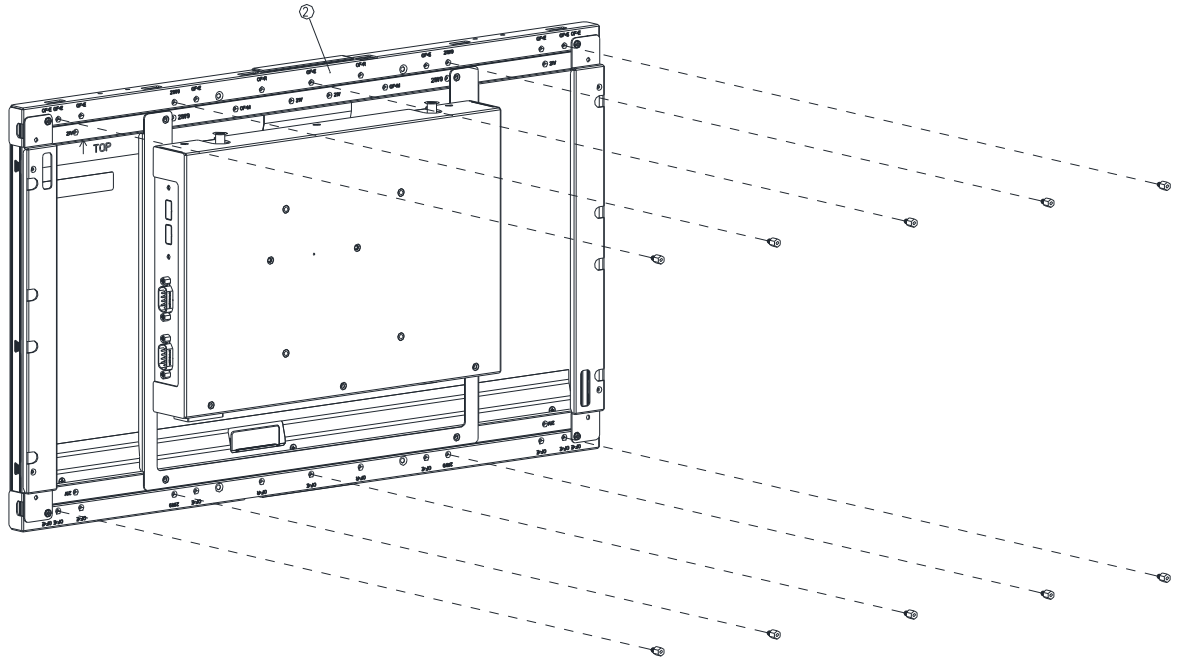
Step1. Install the 21” Wall Box and fix it on the wall, and use suitable screws to lock the wall box (the screws can be purchased according to actual needs)

1	Wall box	1
Item	Part Name	Quantity



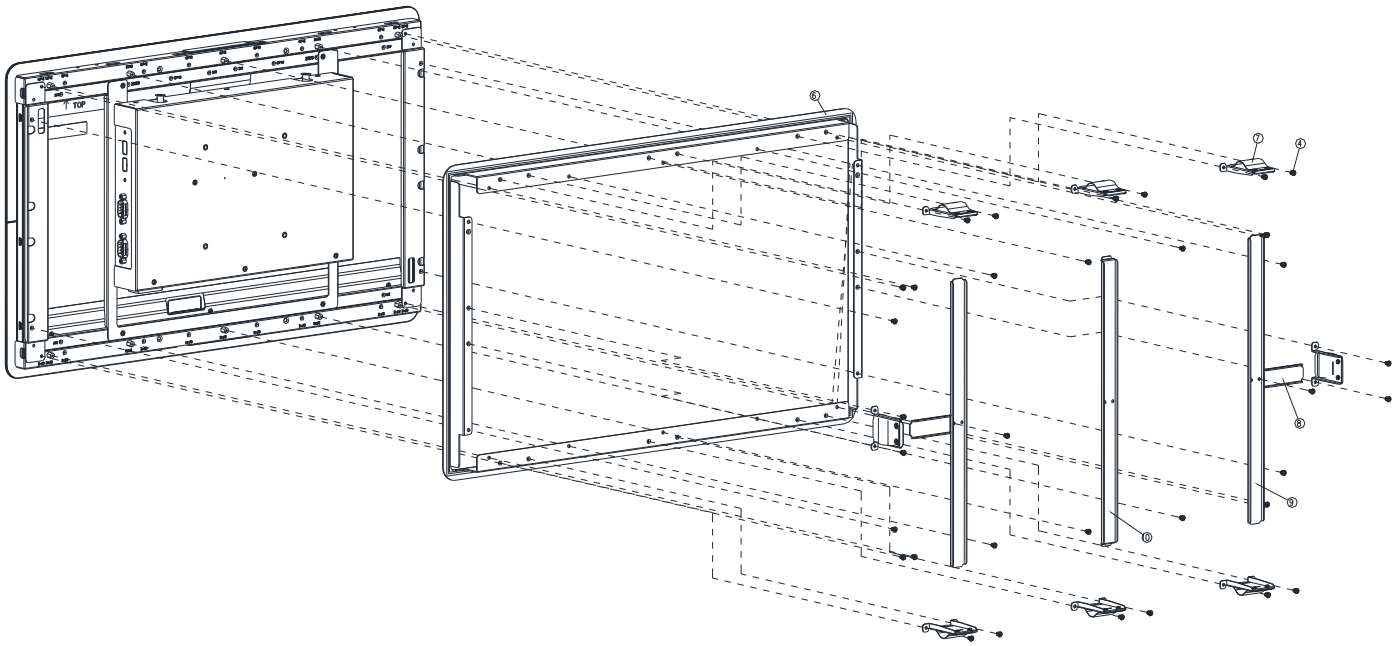
Step2. Assemble the 2pcs Bracket-RL on the left and right sides of the OFM-21W00 bracket by fastening 4 pcs screws on each side

4	Screw	4
3	Bracket-RL	2
2	OFM-21W00	1
Item	Part Name	Quantity



Step3. Fasten 10 pcs Hexagon Studs on each side of the OFM-21W00 Bracket.

5	Hexagon Stud	10
2	BCX11_156_ASSY	1
Item	Part Name	Quantity



Step4-1. Assemble the Front bracket to OFM-21W00, and fasten 14 pcs screws to the 10 corresponding Hexagon Studs locations and 4 Bracket R/L locations.

Step4-2. Fasten the 3 pcs wall mount kit to the top of the Front bracket with 6pcs screws

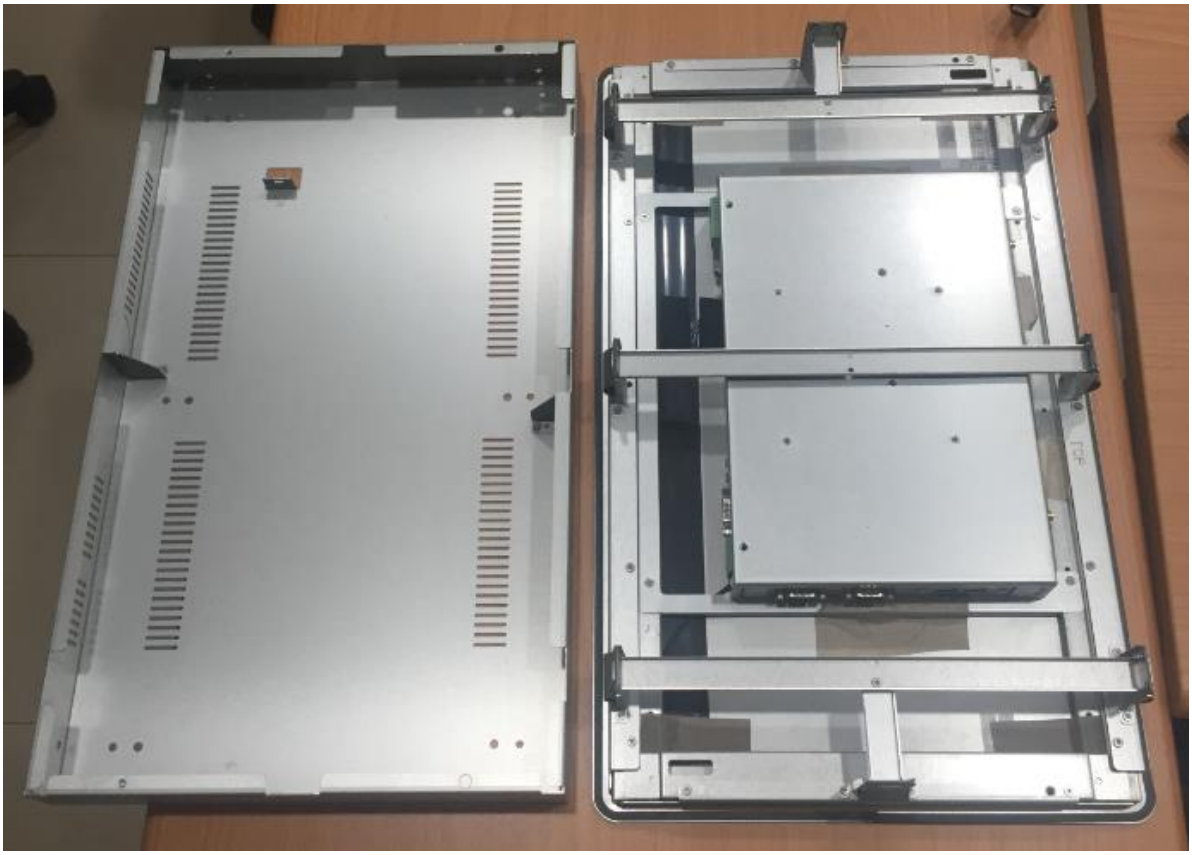
Step4-3. Fasten 2 pcs Support Bracket-H to 2 pcs Support Bracket-V with 2 pcs screws.

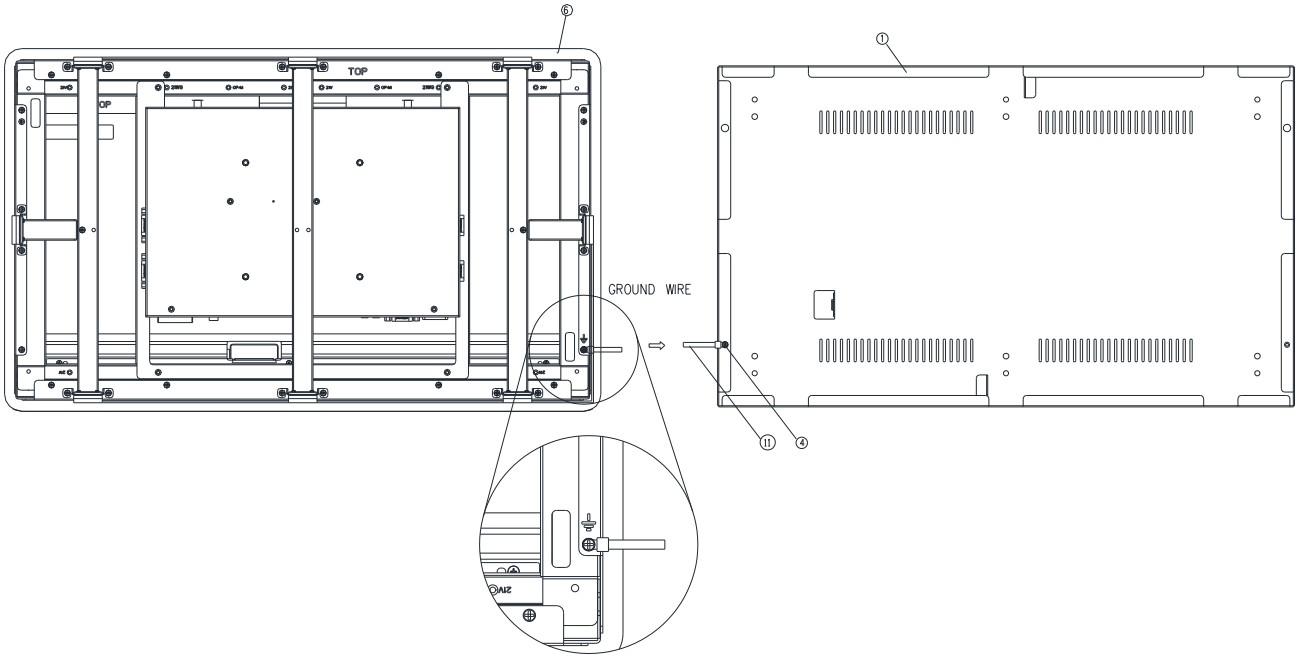
Step4-4. Insert the Support Bracket-H into the locked rectangular hole of the Wall mount kit, and insert the unlocked rectangular hole of the Wall mount kit into the Support Bracket-V/Support Bracket-M and fasten 2 pcs Screws on the Front bracket (3 times in this step)

Step4-5. Insert the rectangular hole of the Wall mount kit into the Support Bracket-H and fasten 2pcs screws to the Front bracket (Repeat two times)

10	Support Bracket-M	1
9	Support Bracket-V	2
8	Support Bracket-H	2
7	Wall mount kit	8
4	Screw	32
6	Front bracket	1
Item	Part Name	Quantity

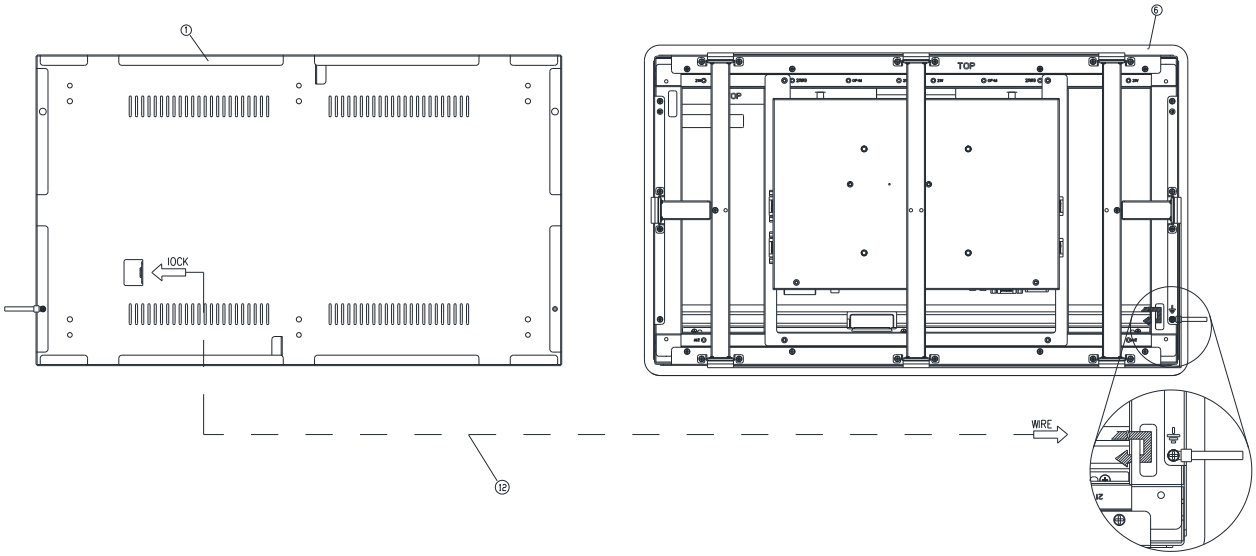
TOP





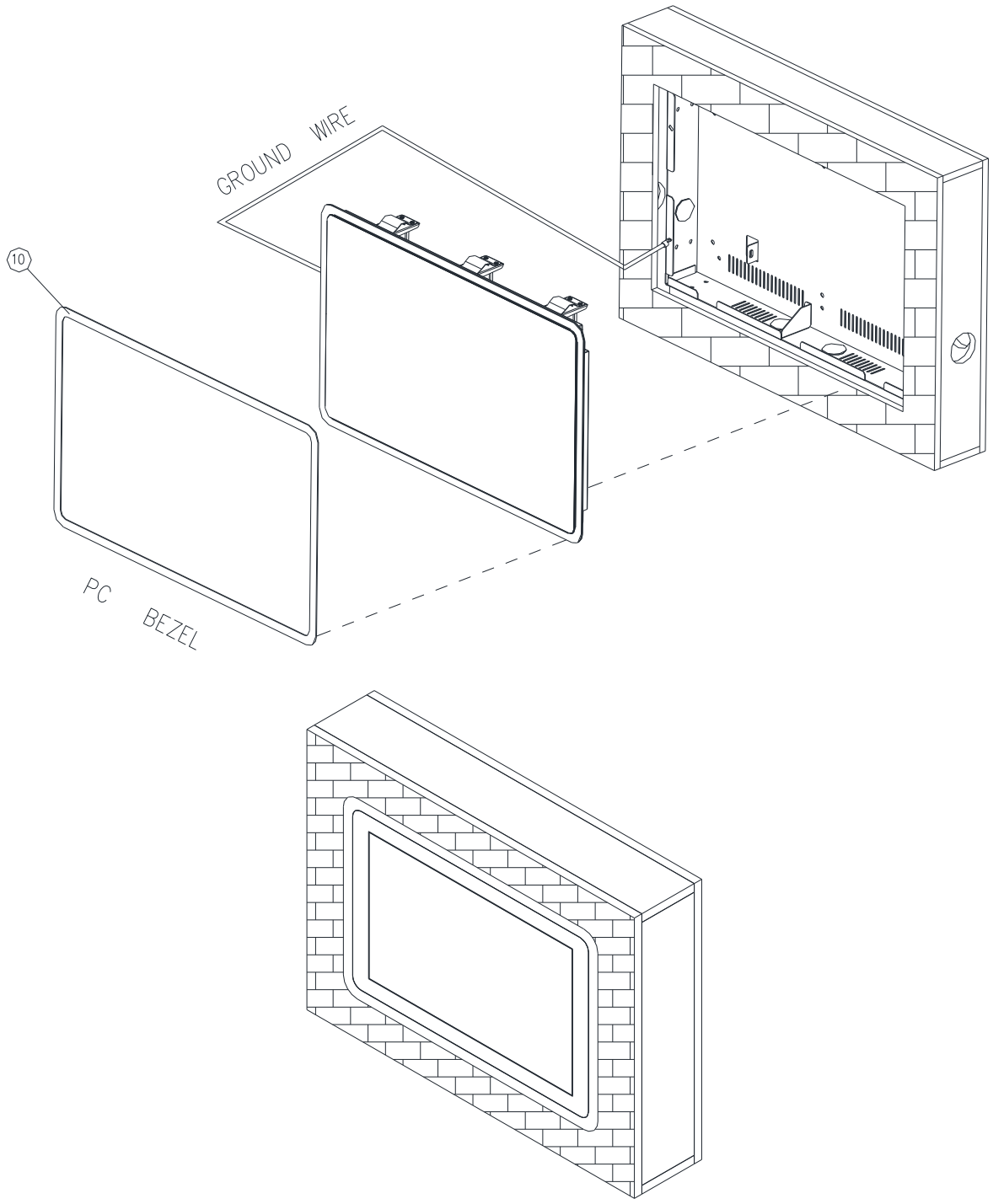
Step5. Fasten the Ground wire with 2 screws on the ground screw holes of Front bracket and Wall box.

11	Ground wire	1
4	Screw	2
6	Front bracket	1
1	Wall box	1
Item	Part Name	Quantity



Step6. Wrap the Kensington lock (option) around the hole in the Front bracket and attach the lock to the keyhole in the Wall box.

12	Kensington lock	1
6	Front bracket	1
1	Wall box	1
Item	Part Name	Quantity



Step6-1. Store the Ground wire and Kensington lock in the Wall box and embed the OFM-21W00 semi-finished product into the wall (Wall Box).

Step6-2. Paste the Decoration Plate on the Front bracket to complete installation.

10	PC bezel	1
Item	Part Name	Quantity

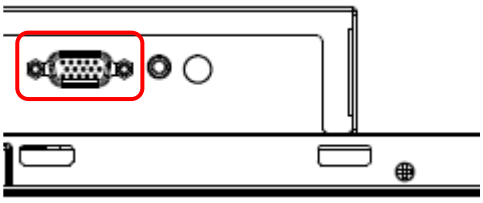
2. Hardware Configuration

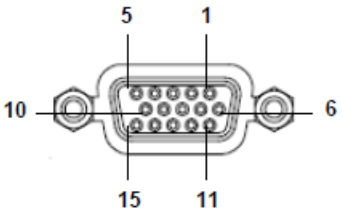
Note: If you need more information, please visit our website:

http://www.avalue.com.tw

2.1 OFM-21W00 connector mapping

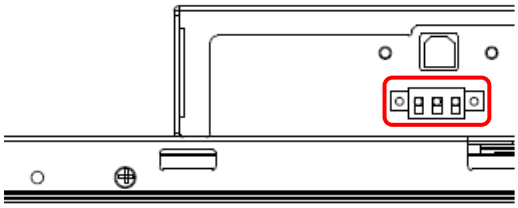
2.1.1 VGA connector (VGA)

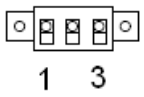




PIN	Signal	PIN	Signal	PIN	Signal
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDCDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYNS
5	GND	10	GND	15	DDCCLK

2.1.2 DC power-in 3pins phoenix socket with mating phoenix connector (Optional for 9~36V)





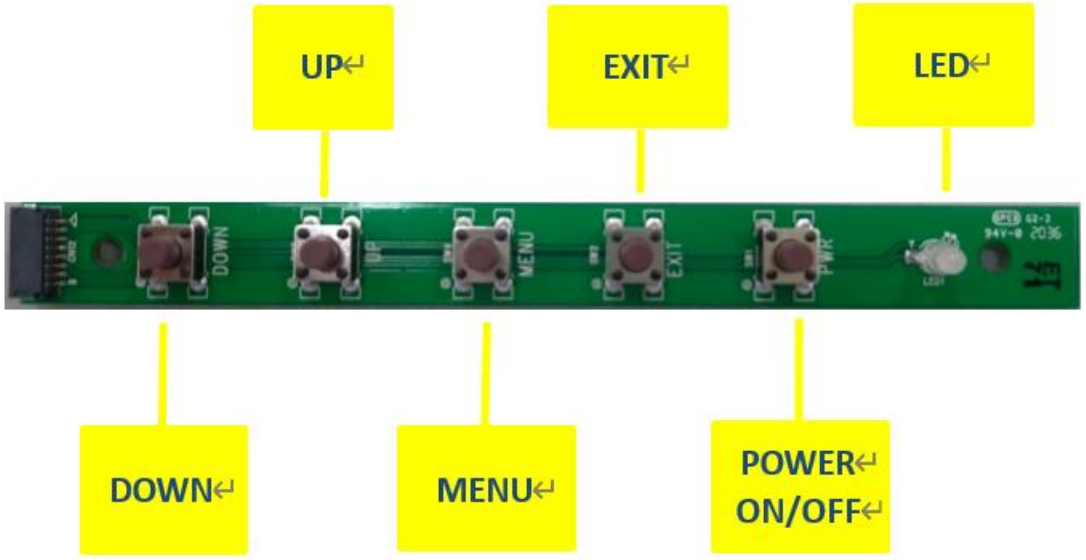
Note:

Do not connect both power connector at the same time, it might cause damage to the device, only select (connect) one power source for your device.

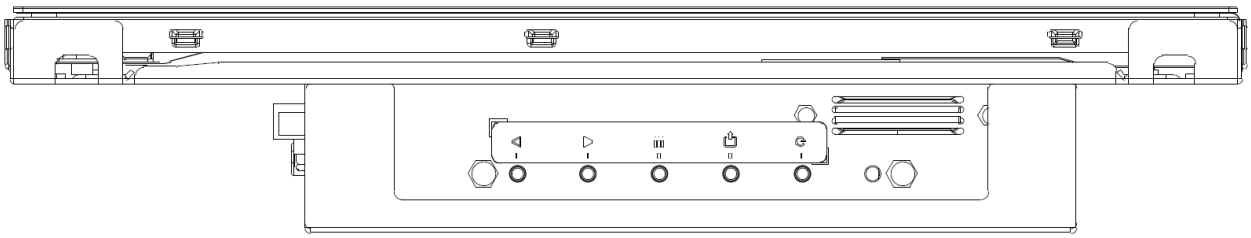
PIN	Signal
1	VIN
2	NC
3	GND

2.2 OSD Key Setting

2.2.1 OSD Key Function:



◁	▶	iii			
DOWN	UP	MENU	EXIT	POWER ON/OFF	LED (Tow Color LED)



2.2.2 OSD Key TREE Table:

OSD Key TREE Table						Range	default
Picture	Backlight					0 - 100	100
	Auto Sensor	ON / OFF					ON
	Brightness					0 - 100	50
	Contrast					0 - 100	50
	Sharpness					0 - 4	2
Display	Auto Adjust (VGA signal only, with auto gain)						
	H Position (VGA signal only)					0 - 100	50
	V Position (VGA signal only)					0 - 100	50
	Clock (VGA signal only)					0 - 100	50
	Phase (VGA signal only)					0 - 100	29
	Disp Rotate	0 / 180					0
Color	Panel Uniformity	ON / OFF					ON
	Gamma	OFF / 1.8 / 2.0 / 2.2 / 2.4					OFF
	Temperature	VGA signal: 9300 / 7500 / 6500 / 5800 / sRGB HDMI / DP signal: sRGB					User
		User	R			0 - 255	128
			G			0 - 255	128
			B			0 - 255	128
	Color Effect	Standard / Game / Movie / Photo / Vivid					Standard
		User	R	HUE		0 - 100	50
				SAT		0 - 100	50
			Y	HUE		0 - 100	50
				SAT		0 - 100	50
			G	HUE		0 - 100	50
				SAT		0 - 100	50
			C	HUE		0 - 100	50
				SAT		0 - 100	50
			B	HUE		0 - 100	50
				SAT		0 - 100	50
			M	HUE		0 - 100	50
				SAT		0 - 100	50
	DEMO	OFF / TYPE1 / TYPE2 / TYPE3 / TYPE4 / TYPE5					OFF
	Color Format	RGB / YUV (VGA signal only)					RGB

	PCM	User / Native			Native
	HUE			0 - 100	50
	SAT			0 - 100	50
Advance	Aspect Ratio	Full / 16:9 / 4:3 / 5:4 / 1:1 / User			Full
	Over Scan	ON / OFF			ON
	Over Drive	ON / OFF	ON / OFF		OFF
		OD Gain		0 - 100	50
	DDCCI	ON / OFF			ON
Input	Auto Select / A0:VGA / D1:DP / D2:HDMI				Auto Select
Audio	Volume			0 - 100	50
	Mute	ON / OFF			OFF
	Stand Along	ON / OFF			OFF
	Audio Source	Analog / Digital			Base on conector signal HDMI /DP: default Digital VGA: only Analog
	Sound Mode				
Other	Reset				
	Menu Time			5 - 60	10
	OSD H Position			0 - 100	50
	OSD V Position			0 - 100	50
	Language	English / Chinese			English
	Transparency			0 - 255	0
	Rotate	0 / 90 / 270 / 180			0
Information	Base on LCD type information				

Note:

Into test mode: No Signal input, then press menu key + right (up) key at the same time.

Release test mode: Signal input will release test mode.

Hot Key: Down/Backlight-, UP/Backlight+, Exit/Auto adjust(no auto gain)