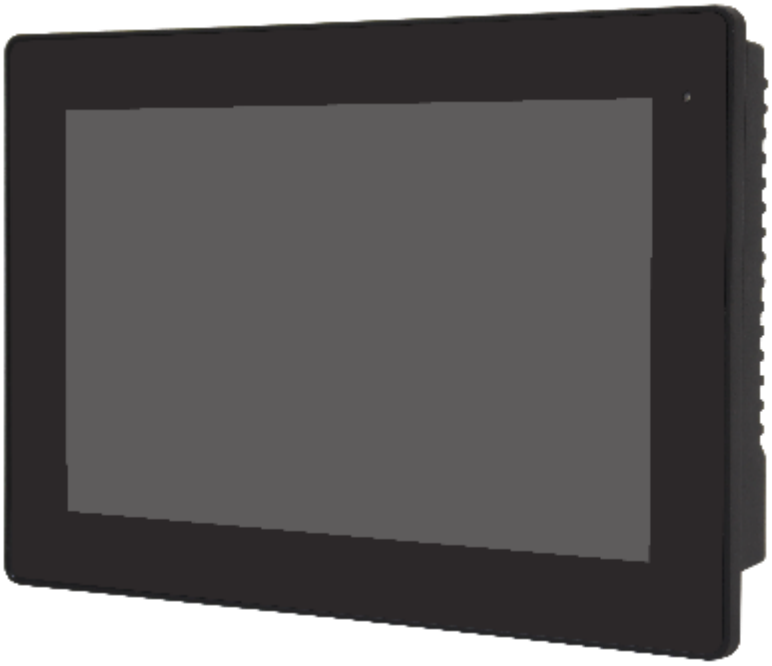

# AUHMI-1XXA Series

**10.1”, 15.6”, 21.5” Fanless Aluminum Die Casting Display**

# User Manual

| Release Date | Revision |
|---|---|
| Sep. 2023 | V1.0 |



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# Revision History

| Reversion | Date | Description |
|---|---|---|
| 1.0 | 2023/09/01 | Official Version |

# Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

## Disclaimer

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# Table of Contents

**Revision History……1**
**Warning!……2**
**Disclaimer……2**

## Chapter 1 Getting Started

1.1 Features……4
1.2 Specifications……4
1.3 Dimensions……7
1.4 Brief Description of AUHMI-1XXA Series……10
1.5 VESA Mounting……13
1.6 Panel Mount……14
1.7 Cable Cover……16

## Chapter 2 Hardware

2.1 AD Board Specifications……18
2.2 AD Board Diemensions……19
2.3 Jumpers and Connectors Location……20
2.4 Jumpers and Connectors……21

## Chapter 3 OSD

3.1 AD Board OSD Functions……27
3.2 OSD Controls……28
3.2 Main Menu……29

## Figures

Figure 1.1: Dimensions of AUHMI-110AP/R(H)……7
Figure 1.2: Dimensions of AUHMI-116AP/R(H)……8
Figure 1.3: Dimensions of AUHMI-121AP/R(H)……9
Figure 1.4: Front View of AUHMI-110AP/R(H)……10
Figure 1.5: Rear View of AUHMI-110AP/R(H)……10
Figure 1.6: Front View of AUHMI-116AP/R(H)……11
Figure 1.7: Rear View of AUHMI-116AP/R(H)……11
Figure 1.8: Front View of AUHMI-121AP/R(H)……12
Figure 1.9: Rear View of AUHMI-121AP/R(H)……12
Figure 1.10: AUHMI-110AP/R(H) VESA Mount……13
Figure 1.11: AUHMI-116AP/R(H)_AUHMI-121AP/R(H)VESA Mount……13

Figure 1.12: AUHMI-110AP/R(H) Panel Mount……..……..14
Figure 1.13: AUHMI-116AP/R(H)_AUHMI-121AP/R(H)Panel Mount….15
Figure 1.14: AUHMI-116AP/R(H)_AUHMI-121AP/R(H)Cable Cover……17
Figure 2.1: Dimensions of TB-6030……..……..19

# Chapter 1 Getting Started

## 1.1 Features

- 10.1”/15.6”/21.5” Fanless Aluminum Diecasting display
- Gap-free sealing and Slim Front Frame architecture
- IP66 Front Panel with Anti-Corrosion Enclosure
- 24V DC power input

## 1.2 Specifications

| | **AUHMI-1XXA Series** |
|---|---|
| **I/O port** | |
| LVDS | 1 x 18/24 bit dual Channel on board |
| VIDEO | 1 x VGA/ 1 x HDMI/ 1 x DP |
| eDP | 1 reserved for eDP interface panel |
| USB | 1 x USB Type A for Touch |
| Audio | 1 x Line-in phone jack |
| Power | DC 24V input |
| Others | Auto-Dimming Function via TB-45 (option) |
| OSD Control Membrane | OSD on the rear side |
| Speaker | 1 x 2W speaker (optional) |
| **Touch Screen** | |
| Type | Resistive touch window (for R model)<br>Projected capacitive touch screen (for P model) |
| Interface | USB |
| Light Transmission | Resistive touch window: over 80%<br>Projected capacitive touch screen: over 90% |
| **Power** | |
| Power Input | DC 24V |
| **Mechanical** | |
| Construction | Aluminum die casting (default), Black color |
| Mounting | Panel Mount<br>VESA 100 x 100mm |
| IP Rating | IP66 |
| **Environmental** | |
| Operating temperature | 0~50°C / -20~60°C for option |

| | |
|---|---|
| Storage temperature | -30~70°C |
| Humidity | 10 to 90% @ 40°C, non- condensing |
| Certification | CE / FCC Class A |

- **Power Consumption and Mechanical Specification**

| | AUHMI-110AP/R(H) | AUHMI-116AP/R(H) | AUHMI-121AP/R(H) |
|---|---|---|---|
| **Power Consumption** | | | |
| Power Consumption | MAX: 5.28W (110AP) | MAX: 12.9W (116AP) | MAX:32.9W (121AP) |
| **Mechanical** | | | |
| Mounting | VESA mount 100 x 100 | | |
| Dimensions(mm) | 269 x 189 x 50 | 405 x 256 x 59 | 541 x 333 x 59 |
| Net Weight | 1.6 Kg | 3.5kg | 6.3 Kg |

- **Standard LCD**

| | AUHMI-110AP/ AUHMI-110AR | AUHMI-116AP/ AUHMI-116AR | AUHMI-121AP/ AUHMI-121AR |
|---|---|---|---|
| **Dipslay** | | | |
| Display Type | 10.1” TFT LCD | 15.6” TFT LCD | 21.5” TFT LCD |
| Max. Resolution | 1280 x 800 | 1366 x 768<br>1920 x 1080 | 1920 x 1080 |
| Max. Colors | 16.7M | 16.7M<br>16.2M | 16.7M |
| Contrast Ratio | 800: 1 | 500: 1<br>800: 1 | 1000: 1 |
| Luminance(cd/m$^2$) | 350 nits | 400 nits<br>450 nits | 250 nits |
| Viewing Angle | 170(H)/170(V) | 170(H)/160(V)<br>170(H)/170(V) | 178(H)/178(V) |
| Backlight Lifetime | 30,000 hrs | 50,000hrs | 50,000 hrs |
| Option | Optical bonding | | |

- **High Brightness LCD (Option)**

| | AUHMI-110APH/ AUHMI-110ARH | AUHMI-116APH/ AUHMI-116ARH | AUHMI-121APH/ AUHMI-121ARH |
|---|---|---|---|
| **Dipslay** | | | |
| Display Type | 10.1” TFT LCD | 15.6” TFT LCD | 21.5” TFT LCD |
| Max. Resolution | 1280 x 800 | 1366 x 768<br>1920 x 1080 | 1920 x 1080 |
| Max. Colors | 16.7M | 16.7M<br>16.2M | 16.7M |
| Contrast Ratio | 1300: 1 | 800: 1 | 1000:1 |
| Luminance(cd/m$^2$) | 1000 nits | 1000 nits | 1000 nits |
| Viewing Angle | 170(H)/170(V) | 170(H)/130(V)<br>170(H)/170(V) | 178(H)/178(V) |
| Backlight Lifetime | 50,000 hrs | 50,000hrs | 50,000 hrs |
| Option | Optical bonding | | |

## 1.3 Dimensions

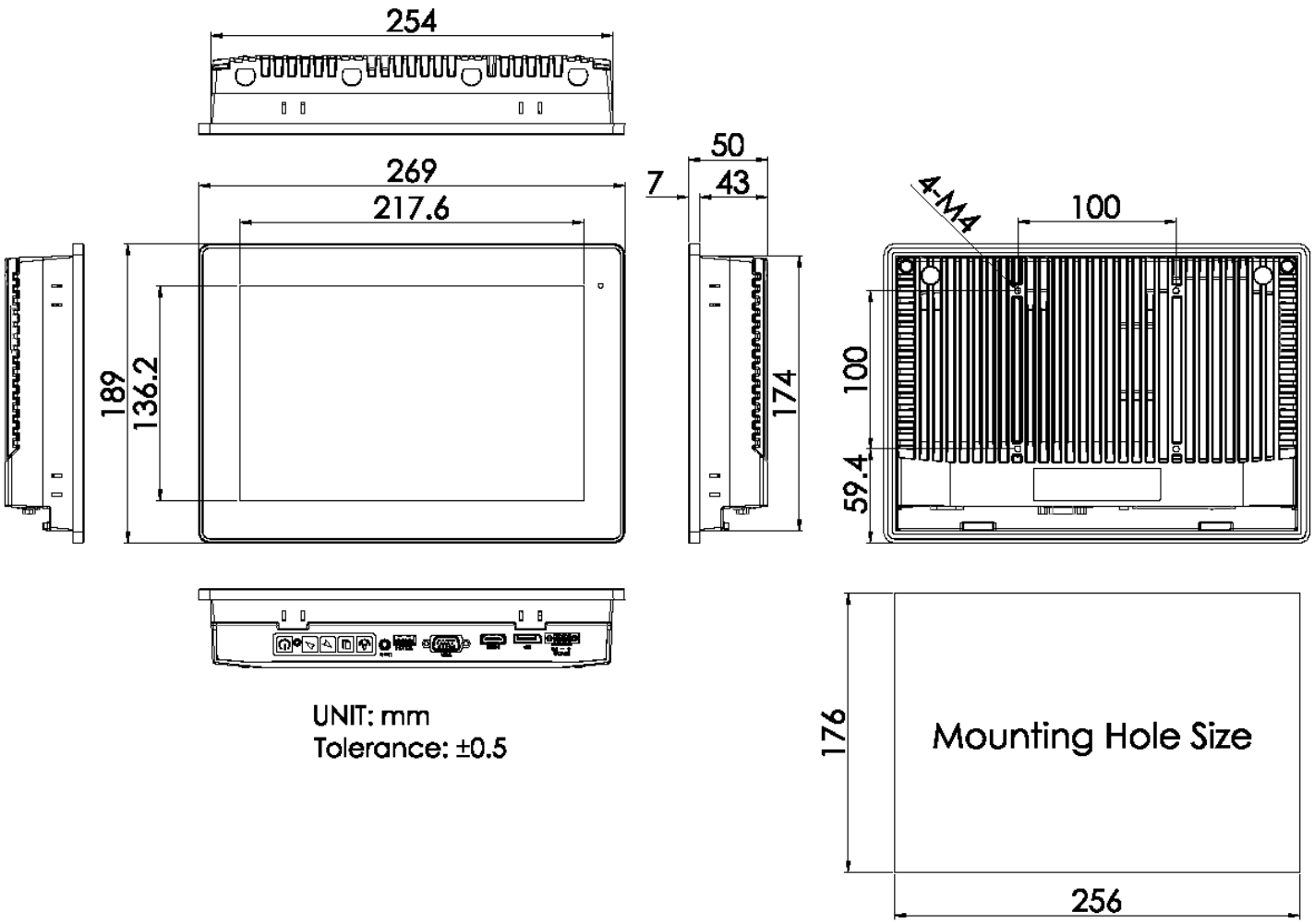



**Figure 1.1: Dimensions of AUHMI-110AP/R(H)**

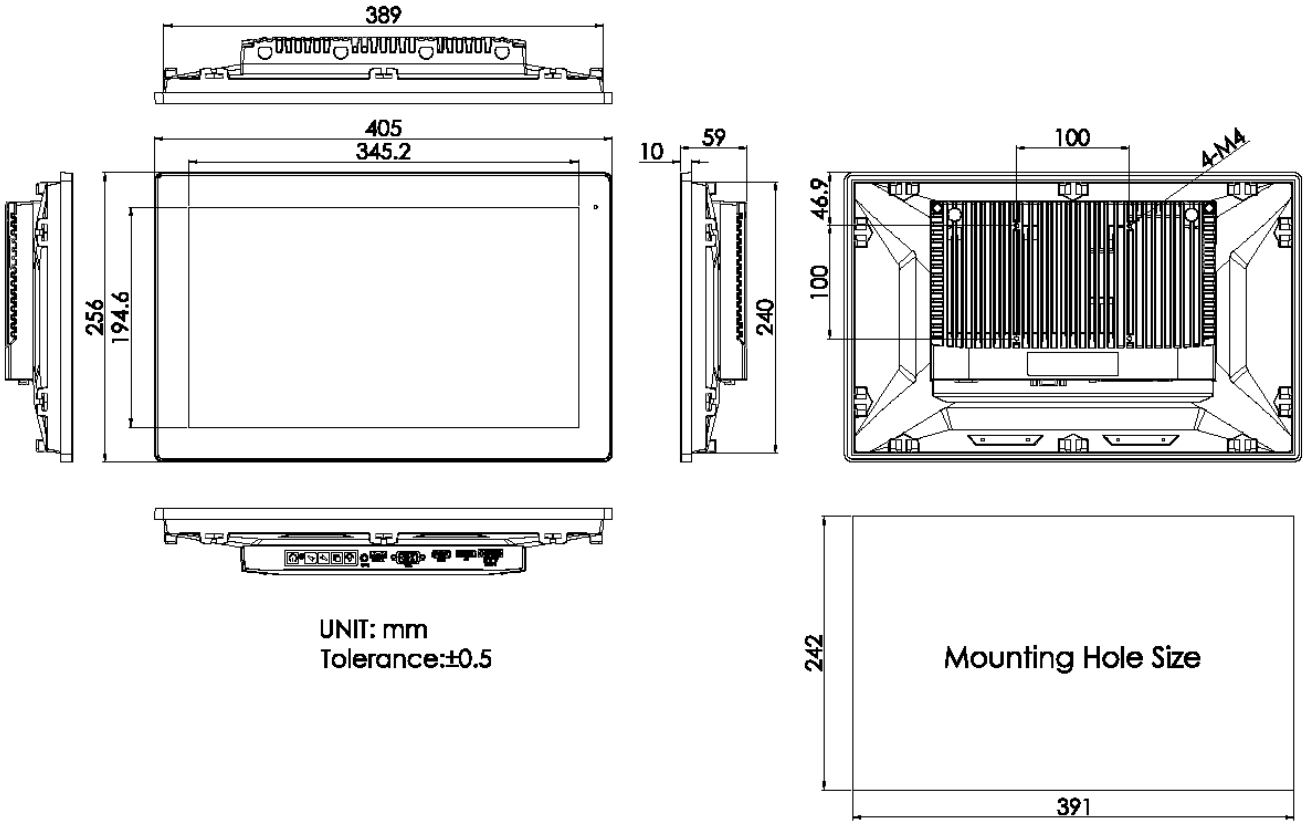



**Figure 1.2: Dimensions of AUHMI-116AP/R(H)**

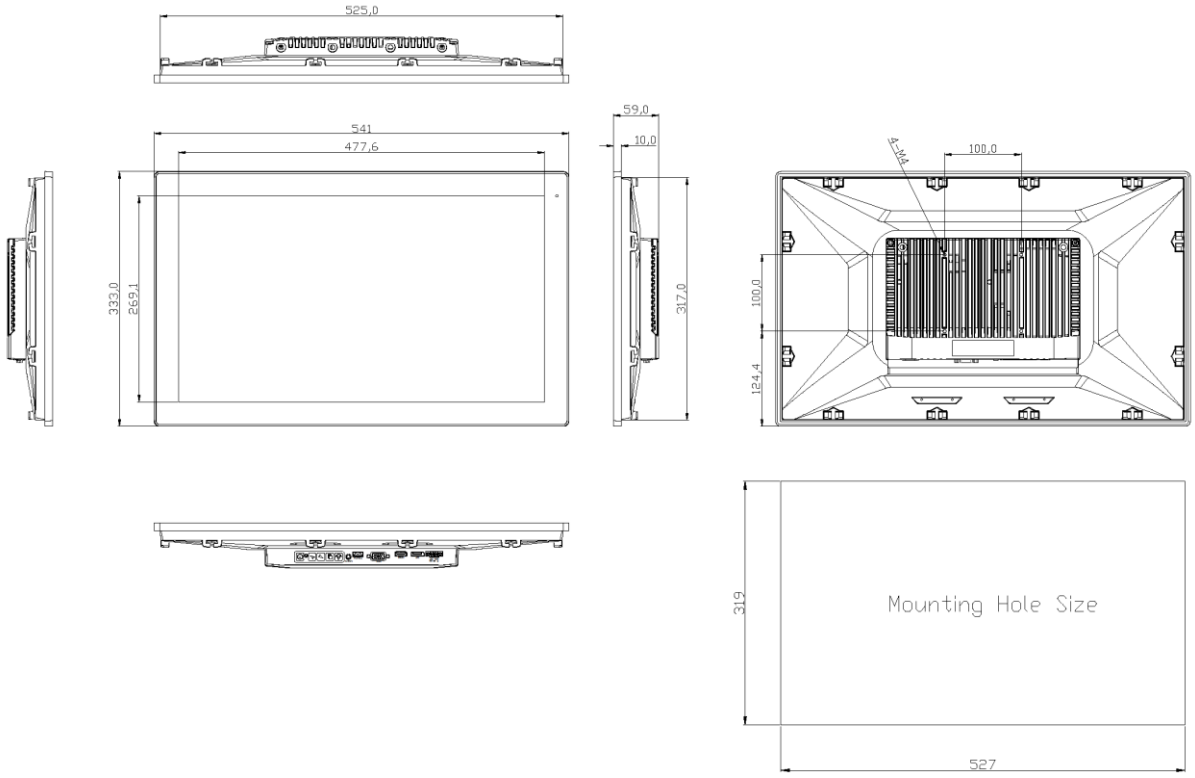



**Figure 1.3: Dimensions of AUHMI-121AP/R(H)**

## 1.4 Brief Description of AUHMI-1XXA Series

AUHMI-1XXA series with TB-6030 AD board is an aluminum die casting display, which comes with 10.1”, 15.6” and21.5” color TFT LCD. AUHMI-1XXA series are DC 24V power input, futhermore, the models support resistive touch and projected capacitive touch, and can be high brightness LCD and optical bonding designed for option. It supports OSD membrane on the rear side of the machine and ergonomic versatile mounting: space-saving VESA mounting.

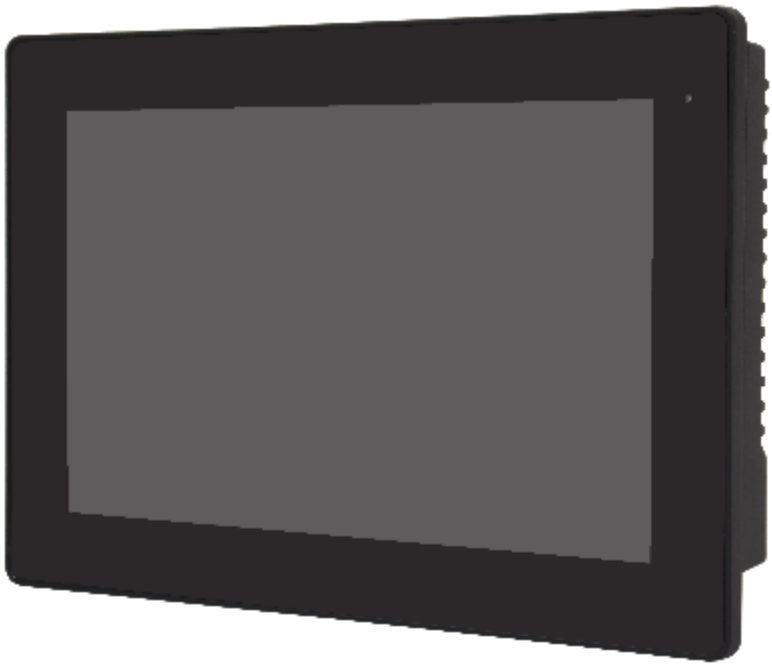


**Figure 1.4: Front View AUHMI-116AP/R(H)**

**Figure 1.5: Rear View of AUHMI-116AP/R(H)**

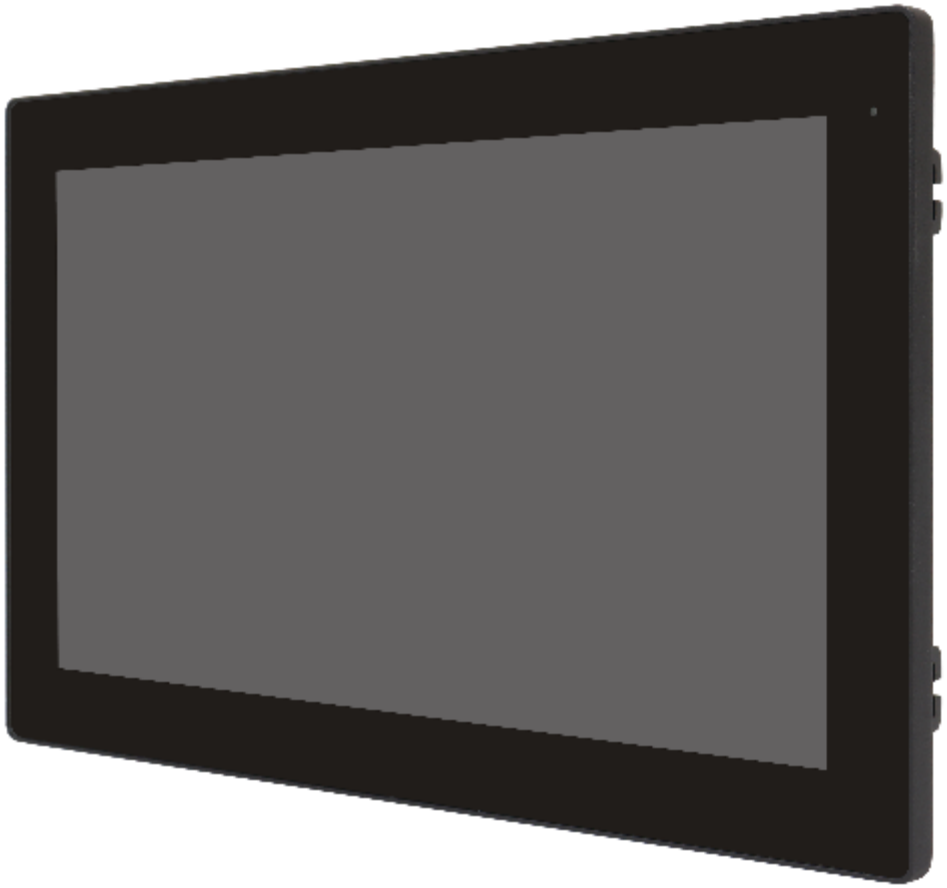


**Figure 1.6: Front View of AUHMI-116AP/R(H)**

**Figure 1.7: Rear View of AUHMI-116AP/R(H)**

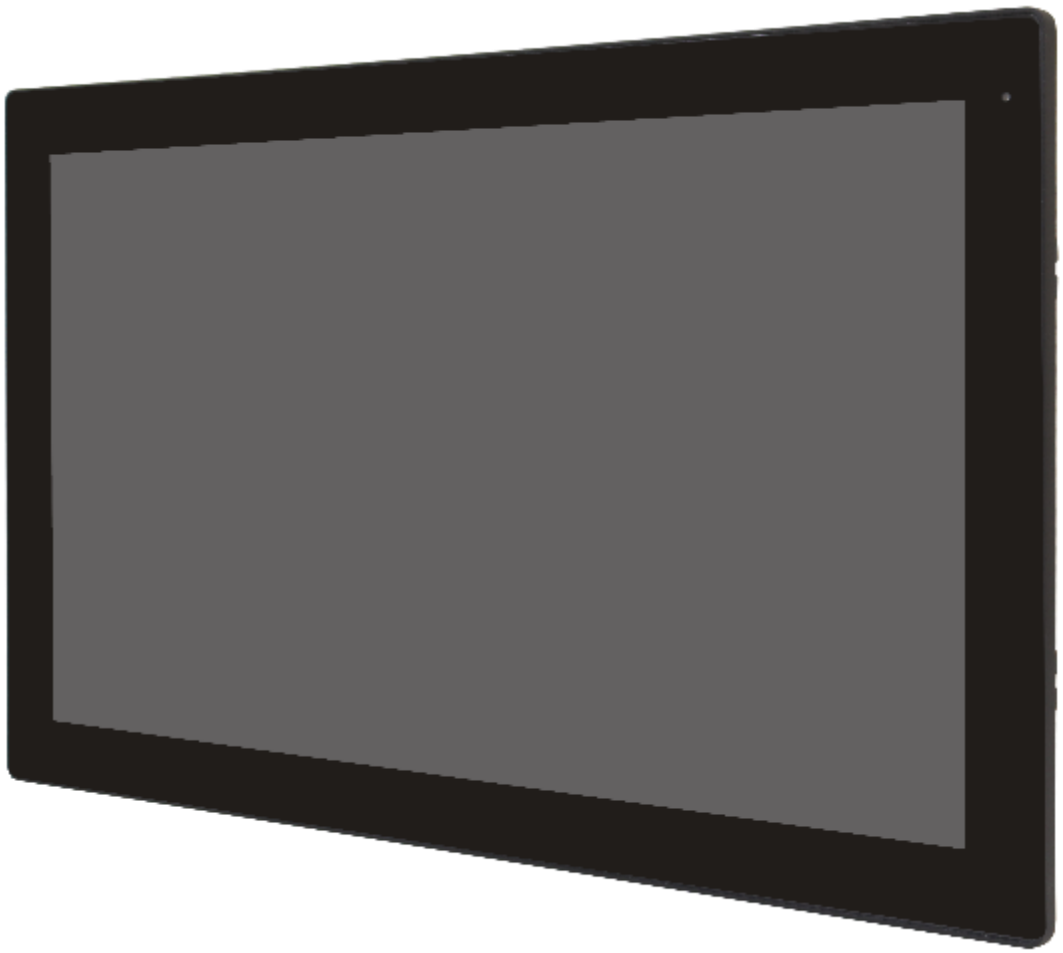


**Figure 1.8: Front View of AUHMI-121AP/R(H)**

**Figure 1.9: Rear View of AUHMI-121AP/R(H)**

# 1.5 VESA Mounting

## 1.5.1. 10.1”

The AUHMI-110A is designed to be VESA mounted (100 x 100mm) as shown in Picture below. Just carefully place the unit through the hole and tighten the given 4 x M4x8 screws from the rear to secure the mounting.

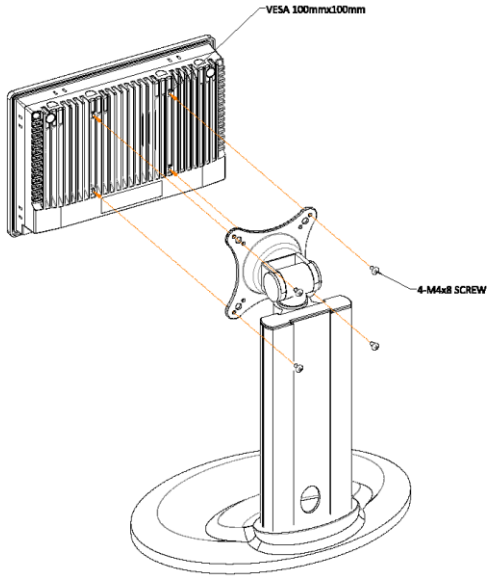



**Figure 1.10: AUHMI-110AP/R(H) VESA Mount**

## 1.5.2. 15.6” and 21.5”

The AUHMI-116A and AUHMI-121A are designed to be VESA mounted (100 x 100mm)as shown in Picture below. Just carefully place the unit through the hole and tighten the given 4 x M4x8 screws from the rear to secure the mounting.

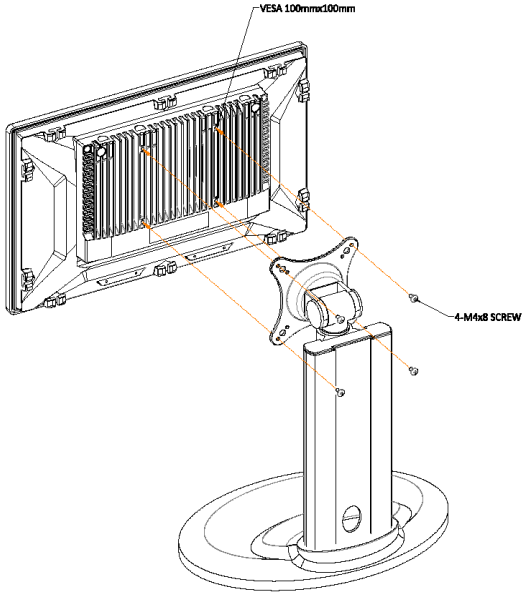



**Figure 1.11: AUHMI-116AP/R(H)_AUHMI-121AP/R(H) VESA Mount**

## 1.6 Panel Mounting

### 1.6.1. 10.1”

Step1: Embed the main AUHMI-110A machine into the panel frame.

Step2: Insert the latch into the specific hole on AUHMI-910C.

Step3: Fix the latch with screw.

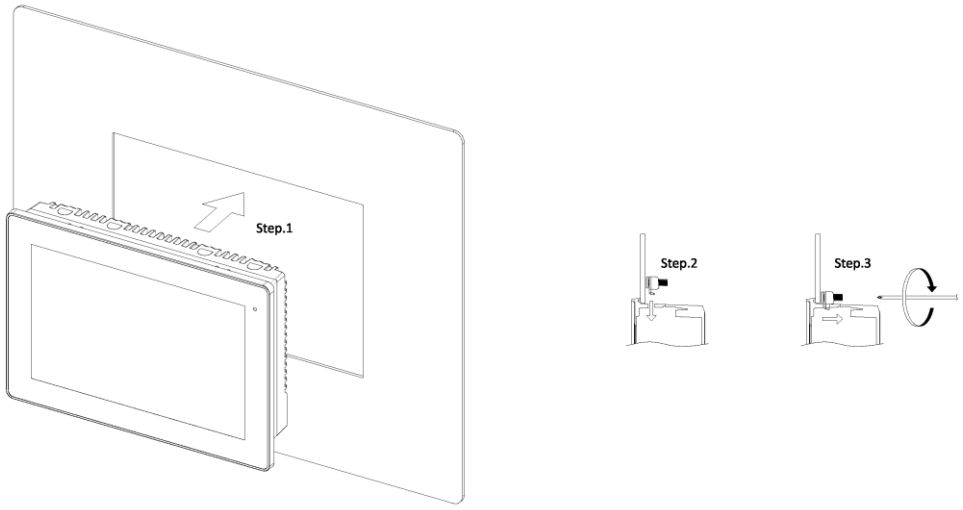
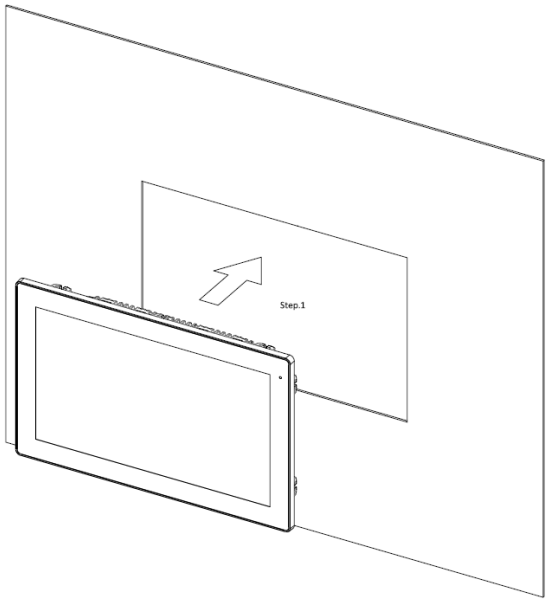



**Figure 1.12: AUHMI-110AP/R(H) Panel Mount**

### 1.6.2. 15.6” and 21.5”

Step1: Embed the main AUHMI-116A/121A machine into the panel frame.




Step2: Insert the latch into the specific hole on AUHMI-116A/121A.(The mounting kits are different from AUHMI-110A)

Step3: Fix the latch with screw.

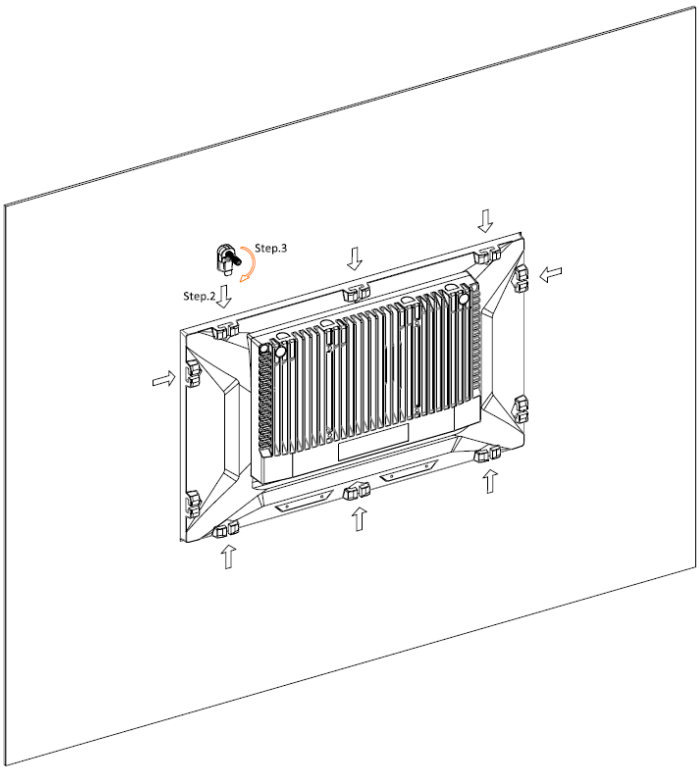



**Figure 1.13: AUHMI-1106AP/R(H)_AUHMI-121AP/R(H) Panel Mount**

## 1.7 Cable Cover

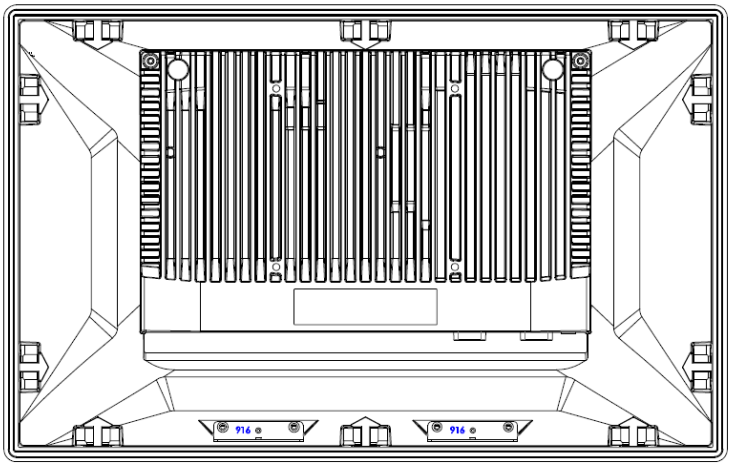
Due to natural mechanical limits, cable cover only fits 15.6” and 21.5” model.

Turn the two small brackets into two sides to separate from 15.6” and 21.5” printing.

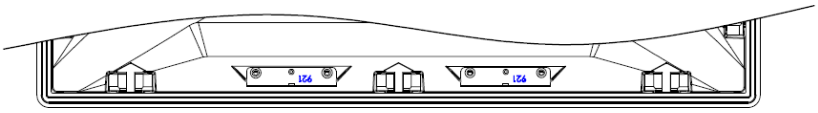
**Pre-installation:**

**When installing 15.6” model, make sure steel bracket with 916 printing is fixed on front frame. (Cover parts shared with AUHMI-916C)**

**When installing 21.5” model, make sure steel bracket with 921 printing is fixed on front frame. (Cover parts shared with AUHMI-921C)**




16"




21"

**Step1:** Insert the cover via the two brackets onto machine.

**Step2:** Fix the cover with 2x M3x6 screws.

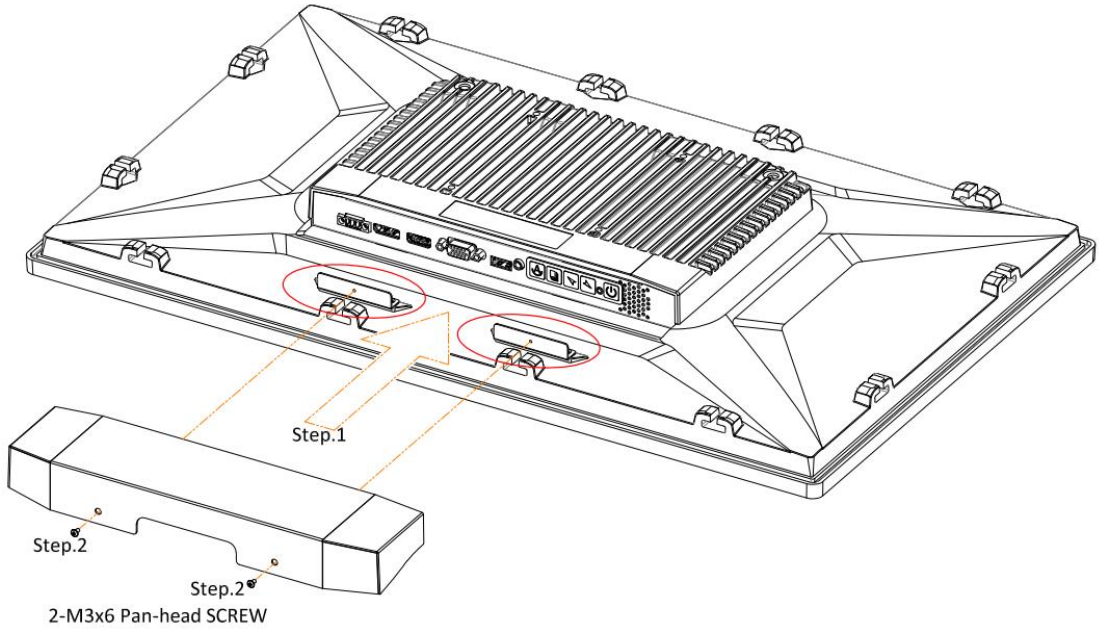



**Figure 1.14: AUHMI-116AP/R(H)_AUHMI-121AP/R(H)**

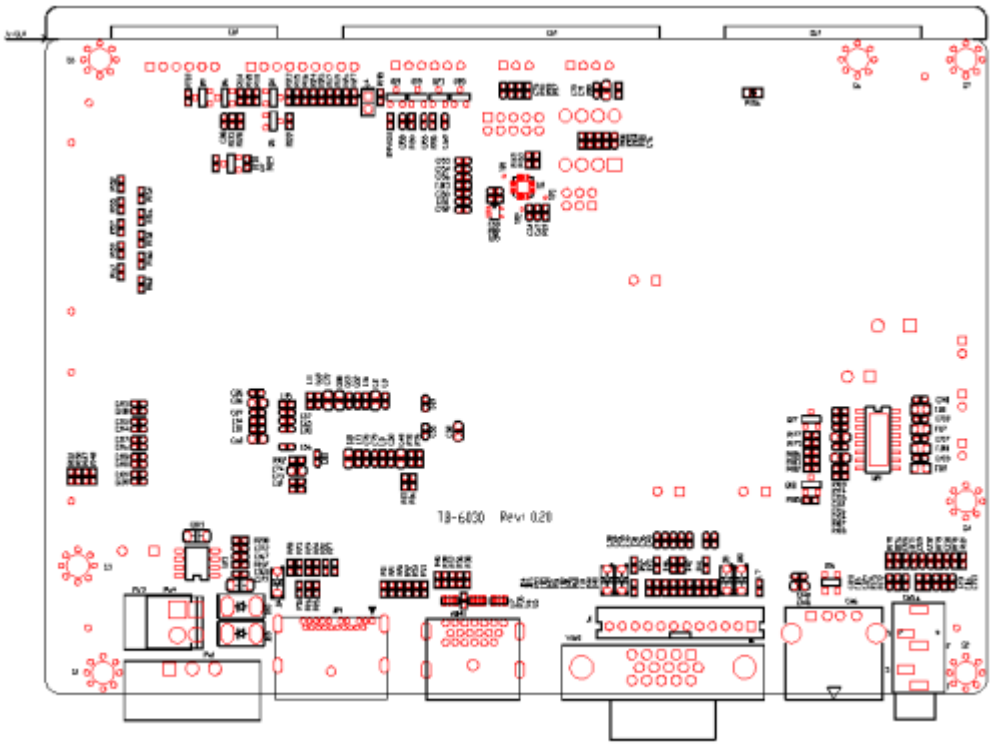
# Chapter 2 Hardware

## 2.1 AD Board Specifications

| | |
|---|---|
| **Main Controller IC** | Realtek RTD2556QR-CG |
| **Video Input** | 1 x DP via DP Connector<br>1 x HDMI via HDMI Connector<br>1 x VGA via female 15pin 3 row D-sub |
| **Video Output** | 1 x 18/24-bit dual channel LVDS w/USB2.0 for PCAP touch via DF13-40DP |
| **High Brightness LCD Backlight Power** | Backlight control, Backlight enable and DC 12V output via pich2.0mm 6pin wafer (INVT) |
| **Backlight Control** | Support PWM control only |
| **Auto Dimming** | Support auto dimming<br>1 x Ambient light sensor via pich2.0mm 3pin wafer<br>**(Minimum Brightness: 5%, Maximum Brightness: 100% @Ambient Illuminance is 700lux)** |
| **RTW Interface (Reserve)** | Onboard USB interface touch controller IC<br>Support RTW via pich2.0mm 9pin wafer |
| **USB Input** | 1 x USB2.0 input via USB type-A |
| **Audio** | Lin-in via 1 x 3.5mm audio jack<br>Support 2x2W speaker via 2 x pitch2.0mm 2pin wafer (SPKL,SPKR) |
| **OSD Function** | Support OSD control via 1 x pitch2.0mm 9pin wafer |

| | |
|---|---|
| **Power Input** | DC 24V input only |
| **Connector** | Dinkle_ECH350RM-3P<br>Dinkle_ESK381R-02P/Changjiang Connectors_A3963WR-2P (Co-lay) |

## 2.2 AD Board Diemensions

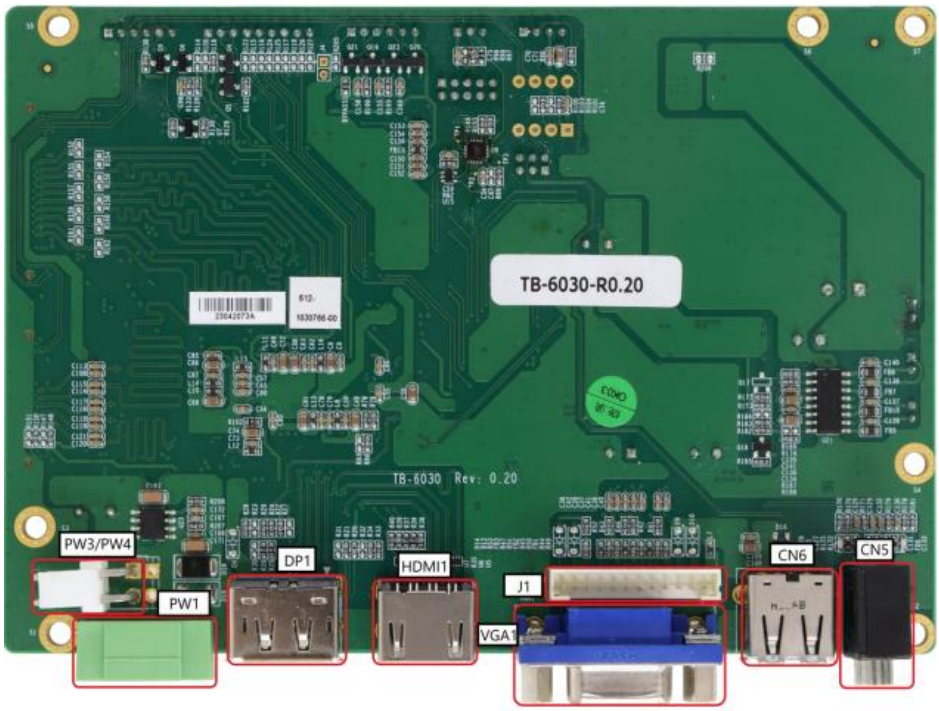



146 x 102 (units :mm)

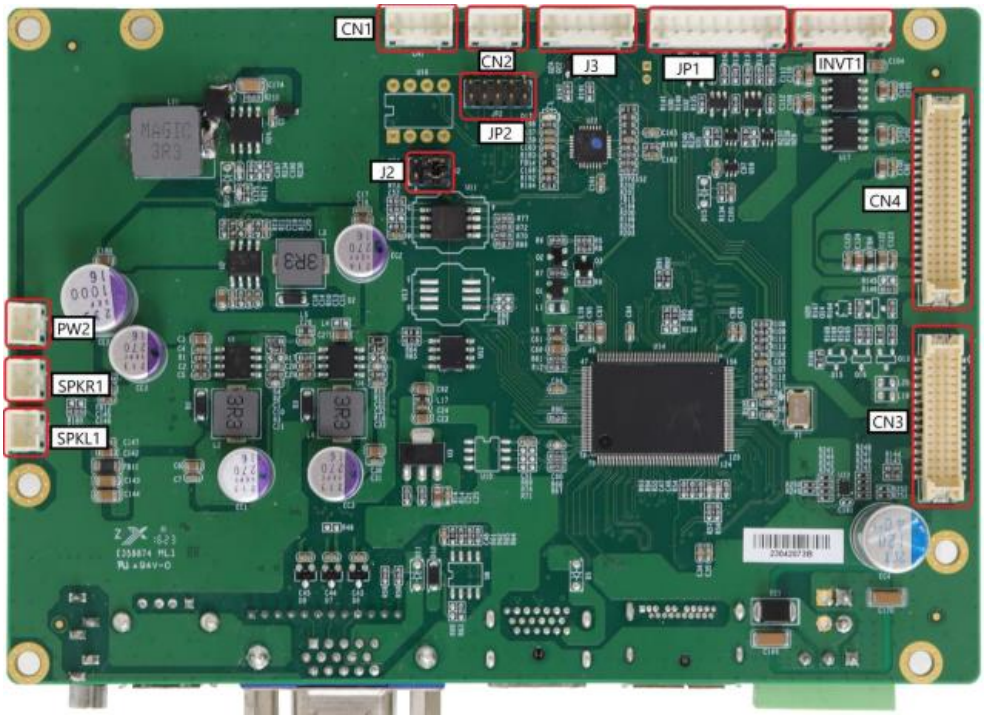
**Figure 2.1: Dimensions of TB-6030**

## 2.3 Jumpers and Connectors Location

### Top Side




### Bottom Side




### External IO

# 2.4 Jumpers and Connectors

**1. DP1 (Display Port Input):**

(DisplayPort Connector), DisplayPort Interface connector, provide high-quality video and audio input.

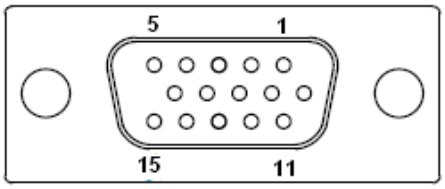
| Signal Name | Pin# | Pin# | Signal Name |
|---|---|---|---|
| LANE3- | 1 | 2 | GND |
| LANE3+ | 3 | 4 | LANE2- |
| GND | 5 | 6 | LANE2+ |
| LANE1- | 7 | 8 | GND |
| LANE1+ | 9 | 10 | LANE0- |
| GND | 11 | 12 | LANE0+ |
| GND | 13 | 14 | GND |
| AUX_CHP | 15 | 16 | DP CAB DET |
| AUX_CHN | 17 | 18 | DP HPD |
| RETURN | 19 | 20 | DP 3.3V |

**2. HDMI1 (HDMI Input):**

(HDMI Connector), Hign Definition Multimedia Interface connector, provide high-quality video and audio input.

| Signal Name | Pin# | Pin# | Signal Name |
|---|---|---|---|
| DATA2+ | 1 | 2 | GND |
| DATA2- | 3 | 4 | DATA1+ |
| GND | 5 | 6 | DATA1- |
| DATA0+ | 7 | 8 | GND |
| DATA0- | 9 | 10 | CLK+ |
| HDMI CAB DET | 11 | 12 | CLK- |
| NC | 13 | 14 | NC |
| HDMI SCL | 15 | 16 | HDMI SDA |
| GND | 17 | 18 | HDMI 5V |
| HDMI HPD | 19 | | |

**3. VGA1 (VGA Input):**




(CRT DB15 Connector), Video Graphic Array Port, provide high-quality video input.

| Pin# | Signal Name |
|---|---|
| 1 | CRT_RED |
| 2 | CRT_GREEN |
| 3 | CRT_BLUE |
| 4 | GND |
| 5 | GND |
| 6 | R |
| 7 | G |
| 8 | B |
| 9 | VGA_5V |
| 10 | DET_VGA |
| 11 | GND |
| 12 | DDCA-SDA |
| 13 | HSYNC |
| 14 | VSYNC |
| 15 | DDCA-SCL |

**4. J1 (VGA input):**

(2.0mm Pitch 1 x 12 Pin Wafer), Video Graphic Array Port, provide 12Pin cable to VGA output.

| Pin# | Signal Name |
|---|---|
| 1 | GND |
| 2 | VSYNC |
| 3 | HSYNC |
| 4 | GND |
| 5 | CRT_RED |
| 6 | GND |
| 7 | CRT_GREEN |
| 8 | GND |
| 9 | CRT_BLUE |

| | |
|---|---|
| 10 | GND |
| 11 | DDCA-SDA |
| 12 | DDCA-SCL |

**5. CN1 (IR Connect): *Reserved***

(2.0mm 1x4 Pin wafer connector), Reserved for IR receiver.

| Pin# | Signal Name |
|---|---|
| 1 | GND |
| 2 | IR |
| 3 | 3.3V |
| 4 | NC |

**6. CN2:**

(2.0mm 1x3 Pin wafer connector), for external light sensor.

| Pin# | Signal Name |
|---|---|
| 1 | 5V |
| 2 | Sensor |
| 3 | GND |

**7. JP1 (OSD):**

(2.0mm 1x9 Pin wafer connector), On Screen Display menu Control connector.

| Pin# | Signal Name |
|---|---|
| 1 | Power Key |
| 2 | R_LED |
| 3 | G_LED |
| 4 | GND |
| 5 | MENU Key |
| 6 | Down Key |
| 7 | UP Key |
| 8 | Select Key |
| 9 | NC |

**8. CN3: *Reserved***

**9. CN4 (LVDS Output):**

(1.25mm Pitch 2x20 Connector), for 24-bit output connector, the interface features dual channel 18/24-bit output.

| Signal Name | Pin# | Pin# | Signal Name |
|---|---|---|---|
| LVDS_12V | 1 | 2 | LCDS_12V |
| BKLT_CTRL | 3 | 4 | BKLT_EN |
| GND | 5 | 6 | GND |
| LVDS_VCC5 | 7 | 8 | LVDS_VCC5 |
| LVDS_VCC3 | 9 | 10 | LVDS_VCC3 |
| GND | 11 | 12 | GND |
| TXA0N | 13 | 14 | TXA0P |
| TXA1N | 15 | 16 | TXA1P |
| TXA2N | 17 | 18 | TXA2P |
| TXA3N | 19 | 20 | TXA3P |
| TXACN | 21 | 22 | TXACP |
| TXB0N | 23 | 24 | TXB0P |
| TXB1N | 25 | 26 | TXB1P |
| TXB2N | 27 | 28 | TXB2P |
| TXBCN | 29 | 30 | TXB3P |
| TXB3N | 31 | 32 | TXBCP |
| LVDS_DDC_DET | 33 | 34 | GND |
| CPT-USB_N | 35 | 36 | CPT-USB_P |
| DDCSDA_AUTO | 37 | 38 | LVDS_USB_5V |
| DDCSCL_AUTO | 39 | 40 | LVDS_VCC3 |

**10. INVT1:**

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS.

| Pin# | Signal Name |
|---|---|
| 1 | LVDS_DC12V |
| 2 | LVDS_DC12V |
| 3 | Ground |
| 4 | Ground |
| 5 | BKLT_EN |
| 6 | BKLT_CTRL |

**11. SPKL1 (Audio output):**

(2.0mm 1x2Pin wafer connector), Amplifier left channel output.

| Pin# | Signal Name |
|---|---|
| 1 | L+ (output) |
| 2 | L- (output) |

**12. SPKR1 (Audio output):**

(2.0mm 1x2 Pin wafer connector), Amplifier right channel output.

| Pin# | Signal Name |
|---|---|
| 1 | R+ (output) |
| 2 | R- (output) |

**13. CN5 (Line In):**

**Line-in**

(Diameter 3.5mm Jack)Use for the connection of external audio source via a Line-in cable.

**14. CN6(USB2.0):**

(USB Type-A), for external USB2.0 signal input.

| Pin# | Signal Name |
|---|---|
| 1 | USB 5V |
| 2 | USB- |
| 3 | USB+ |
| 4 | GND |

**15. J2:**

(2.0mm Pitch 2x3 Pin Header), RS232 or USB input for PM6000 Touch Controller Signal jumper setting.

| J2 | PM6000 input Signal | CN4/USB output |
|---|---|---|
| Close (3-5,4-6) | NC | |
| Close (1-3,2-4) | USB (CN6) | NC |
| Close (1-3,2-4) | RS232 (CN7) | NC |
| Close (1-3,2-4) | RS232 (CN7) | NC |

**16. J3:**

(2.0mm Pitch 1x6 Pin Wafer), touch screen connecting lines.

| Pin# | 4-Wire | 5-Wire |
|---|---|---|
| 1 | N/A | Sense(S) |
| 2 | Right | LR |
| 3 | Left | LL |
| 4 | Bottom | UR |

| | | |
|---|---|---|
| 5 | Top | UL |
| 6 | GND | GND |

**17. PW1:**

(3.50mm Pitch 3-Pin Terminal Block), DC24V power input connector.

**PW1 (Dinkle ECH350RM-03P)**

| Pin# | Power Input |
|---|---|
| 1 | DC+24V |
| 2 | Ground |
| 3 | FG |

**18. PW3/PW4:** Co-lay, Default PW3

(3.50mm Pitch 2-Pin Terminal Block), DC24V power input connector.

**PW3/PW4 (PW3: Dinkle ESK381R-2P PW4: CJT A3963WR-2P)**

| Pin# | Power Input |
|---|---|
| 1 | DC+24V |
| 2 | Ground |

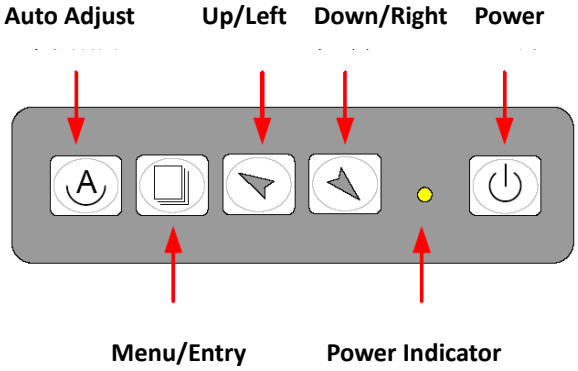
**19. PW2 (DC12V output):**

(2.0mm Pitch 1x2 Pin Wafer), provide DC12V output.

| Pin# | Power Input |
|---|---|
| 1 | DC+12V |
| 2 | Ground |

# Chapter 3 OSD

## 3.1 AD Board OSD Functions




Power switch: To turn ON or OFF the power

Shift the icon to the right side or shift it up

Shift the icon to the left side or shift it down

Menu: To enter OSD menu for related icon and item.

Auto Button: One-touch auto adjustment

**1.) Getting into Burn-in Mode**

Before setting into a burn-in mode, first disconnect the AC power cord. Then press (don't let them go) the buttons until the AC power cord is connected and the "RGB" appears on the top left corner of your screen. Now it can be put into the burn-in mode for changing colors.

**2.) Getting Out of Burn-in Mode**

Before getting out of the burn-in mode, please first disconnect the AC power cord. Then press the button (If not workable, press the button and don't let them go) until the AC power cord is connected. Please don't let your fingers go until the AC power cord is connected again and the wording of "RGB" appears on the top left corner of your screen, and wait for 3 second. Under the non-signal entry situation, if is seen, exit is **Cable Not Connected**

**When the Burn-in Mode is Unable to Eradicate…**

1.) If the "RGB" is still on the top left corner of the screen, press to enter "Miscellaneous" and choose "Reset", and then **Yes,** and press . When the screen goes black, disconnect power and repeat the above steps.

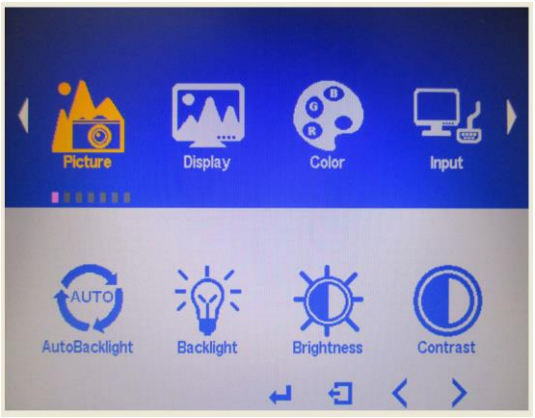
2.) If the "RGB" is not found, disconnect the AC power cord first. Then press the buttons (don't let them go) until the AC power cord is connected, and wait for 2 to 3 seconds. When "RGB" appears, repeat the above steps.

## 3.2 OSD Controls

To make any adjustment, select the following:

20. Press (Menu) to show the OSD menu or disable the OSD menu.
21. Select the icon that you wish to adjust with the ( / or +/-) key in the menu.
22. Press (Menu) and then choose the item with the ( / or +/-) key.
23. Press (Menu) and then adjust the quality with the ( / or +/-) key.

## 3.3 Main Menu




In the **PICTURE**, there are the following items:

- AutoBacklight
- Backlight
- Brightness
- Contrast
- Sharpness
- Exit

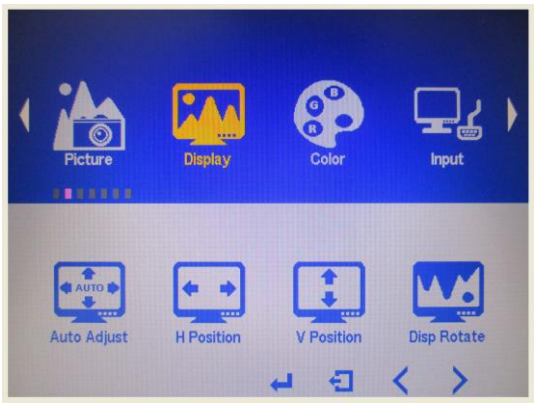

**AutoBacklight**

**Backlight**

**Brightness**

**Contrast**

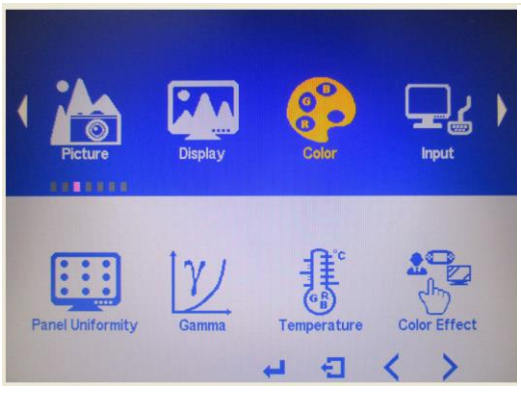
**Sharpness**




In the **DISPLAY**, there are the following items:

- AutoAdjust
- H Position
- V Position
- Disp Rotate
- Exit


**Disp Rotate**

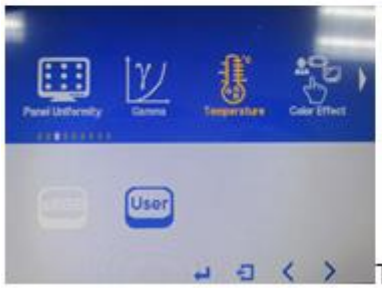



In the **COLOR**, there are the following items:

- Panel Uniformity
- Gamma
- Color Temp
- Color Effect
- Exit


Panel Uniformity

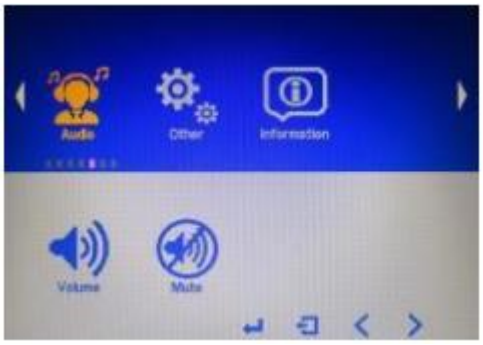

Gamma




Temperature


In the **INPUT**, there are the following items:

- Auto Select
- DP
- HDMI
- Exit




In the **AUDIO**, there are the following items:

- Volume
- Mute
- Exit


In the **OTHER**, there are the following items:

- Reset
- Menu Time
- OSD H Position
- OSD V Position
- Exit