

# Engineering Specification

## Model No. : APR-A0843-(A)(B)(C)(D)

### 8.4 inches Flat Panel Monitor

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#### Revision History

| Ver. | Date          | Page | Change Description |
|------|---------------|------|--------------------|
| 1.0  | Oct, 20, 2011 | N.A  | Initial Release    |
|      |               |      |                    |
|      |               |      |                    |
|      |               |      |                    |
|      |               |      |                    |
|      |               |      |                    |
|      |               |      |                    |
|      |               |      |                    |

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## 1. Description

This is the industrial-Grade flat panel monitor based on 8.4" SVGA TFT LCD panel that is providing high quality screen image.

This monitor supports analog RGB, digital RGB input with expanding to full screen image. (by Model Definition)  
It affords convenience to the user in installing various applications such as amusement, industry use and so on.

## 2. General Features

- Wide input resolution range up to SVGA 800x600@60Hz.
- Enhanced Video Quality thru high performance up and down-scaling characteristic
- Automatic Scanning & Image Adjustment
- The most suitable GUI (Graphic User Interface)
- Auto Power On (Reset Condition)

## 3. Specification

### -Model Definition

#### Basic Model : APR-A0843-ONAB

< Optional >

APR-A0843-(A)(B)(C)(D)

|            |              |  |
|------------|--------------|--|
| Suffix (A) | Frame Option | (O : Open Frame, C : Chassis Type, P : Panel Mount, R : Rack Mount)                                    |
| Suffix (B) | Front Option | (N : No Option, R : Resistive T/S, C : Capacitive T/S, S : SAW T/S, I : IR T/S, P : Protection Glass,) |
| Suffix (C) | Input Option | (A : VGA only, B :VGA + DVI, H :VGA + Audio, I : VGA + DVI + Audio)                                    |
| Suffix (D) | Power Option | (A : AC Power IN, B : DC12V-In, C : DC18V-In, D : DC24V-In)  |

\* Please contact sales department of alpha display for touch screen and chassis type in detail.

### -Panel

|                        |                                  |                             |                                   |
|------------------------|----------------------------------|-----------------------------|-----------------------------------|
| Panel Module           | AUO, G084SN05                    |                             |                                   |
| Size                   | 8.4 inches                       |                             |                                   |
| Active Display Area    | 170.4 mm (H) x 127.8 mm (V)      |                             |                                   |
| Number of Pixels       | 800dots (H) x 600 lines (V) SVGA |                             |                                   |
| Pixel Pitch (mm)       | 0.213 mm (H) x 0.213 mm (V)      |                             |                                   |
| Color Depth            | 262K / 16.2M                     |                             |                                   |
| Viewing Angle (CR≥ 10) | Horizontal                       | (θL)                        | Typ. 80 degrees (Min. 70 degrees) |
|                        |                                  | (θR)                        | Typ. 80 degrees (Min. 70 degrees) |
|                        | Vertical                         | (φH)                        | Typ. 80 degrees (Min. 65 degrees) |
|                        |                                  | (φL)                        | Typ. 60 degrees (Min. 50 degrees) |
| Contrast Ratio         | Typ. 600 : 1 (Min. 400 : 1)      |                             |                                   |
| Response Time          | Rise Time (Tr)                   | Typ. 20 mSec (Max. 30 mSec) |                                   |

|                                     |   |
|-------------------------------------|---|
| Fall Time (Tf)                      | Typ. 10 mSec (Min. 20 mSec)   |
| Average Brightness                  | Typ. 450 cd/m <sup>2</sup> (Min. 350 cd/m <sup>2</sup> )  |
| Panel Dimension                     | 203.0 mm (W) x 142.5 mm (H) x 8.0 mm (D)  |
| Back Light System                   | LED BackLight   |
| <b>-Scanning Frequency</b>          |   |
| Horizontal                          | 30 ~ 80.0 KHz   |
| Vertical                            | 55 ~ 75 Hz  |
| <b>-Input Resolution</b>            |   |
| <b>Analog RGB &amp; Digital RGB</b> |   |
| Recommended Resolution              | 800 x 600@60 Hz   |
| Supported Resolution                | 640x480@60/67/72/75 Hz<br>800x600@56/60/72/75 Hz  |
|                                     | <i>* Custom Resolution Available</i>  |
|                                     | <i>* Digital RGB Input, recommended 60Hz of each mode by VESA.</i>                                      |
| <b>-Input Signal</b>                |   |
| RGB                                 | Analog RGB<br>Amplitude: 0.7 ± 0.05V<br>Input Impedance: 75 ± 2% ohms                                   |
| Sync                                | H/V Separate (TTL Level)  |
| DVI (Option)                        | Digital RGB<br>Swing Voltage: 400mV ≤ V <sub>sig</sub> ≤ 600mV<br>Termination Resistance: 50 ± 10% ohms |
| <b>-Input Signal Connector</b>      |   |
| Analog RGB                          | 15pin D-Sub x 1   |
| Digital RGB(Option)                 | DVI-D x 1   |
| <b>-Plug &amp; Play</b>             | DDC2B (VESA Standard)   |
| <b>-Power Supply Rating</b>         |   |
| DC Input Voltage                    | Typ. DC +12V  |
| Max. Power Dissipation              | Less than 15Watts   |
| Power Consumption                   | 10W ± 10%   |
| AC Power Adaptor Rating             | DC 12V / 3.5A output<br>AC 100~240V@60/50Hz (Universal)   |
| <b>-User Controls</b>               |   |
| OSD Keypad                          | Power, Menu, Select, Up, Down (1Row 5Keys)  |
| OSD Language                        | English, German, French, Spanish, Italian (5 Languages)   |
| <b>-Regulation</b>                  |   |
| RoHS Compliant                      | In compliance with the essential requirements<br>and other relevant provisions of European Union        |

Directive 2002/95/EC (RoHS).

## 4. Environmental and Reliability Specification

\* This specification depends on LCD panel characteristic. Please refer to panel specification in detail.

### •Operating Conditions

|             |  |
|-------------|--|
| Temperature | 0°C ~ 70°C   |
| Humidity    | 10% ~ 90%RH @Ta < 40°C, non-condensing<br>Wet-bulb temperature should be 39°C Max. |
| Altitude    | Max. 3,000m  |

### •Transportation Conditions

|             |   |
|-------------|---|
| Temperature | -30°C ~ 85°C  |
| Humidity    | 10% ~ 90% RH @Ta < 40°C, non-condensing<br>Wet-bulb temperature should be 39°C Max. |
| Altitude    | Max. 15,000m  |

### •Storage Conditions

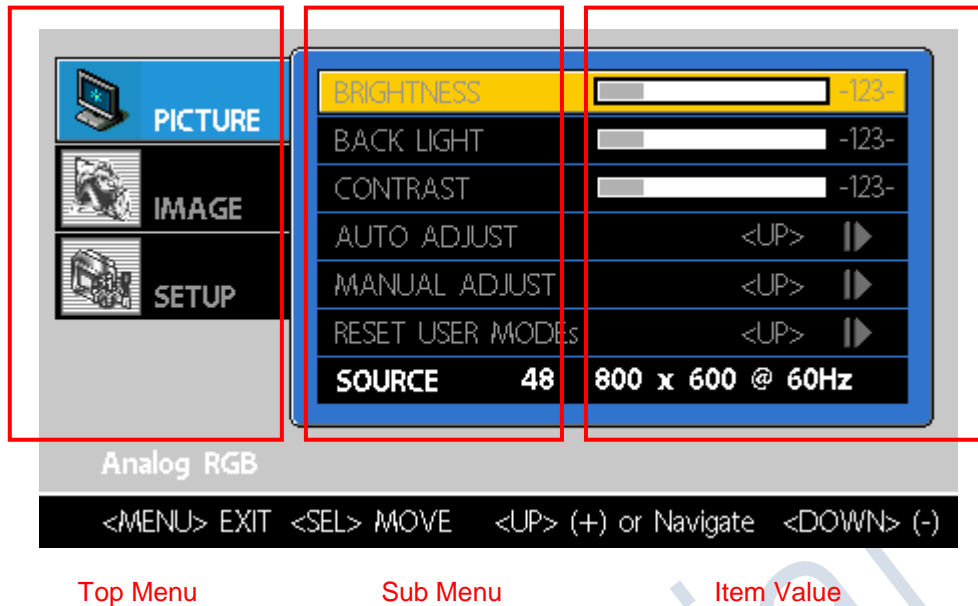
|             |   |
|-------------|---|
| Temperature | -30°C ~ 85°C  |
| Humidity    | 10% ~ 90% RH @Ta < 40°C, non-condensing<br>Wet-bulb temperature should be 39°C Max. |
| Altitude    | Max. 15,000m  |

### •Reliability Specifications

|             |  |
|-------------|--|
| Life Time   | Typ. 50,000 hours at 90% confidence level.<br>(50% of initial Brightness, Ta = 25 ± 5°C) |
| Reliability | General Specification of reliability test  |

## 5. OSD Control Functions & Keypad Description

### 5-1. OSD Control Functions

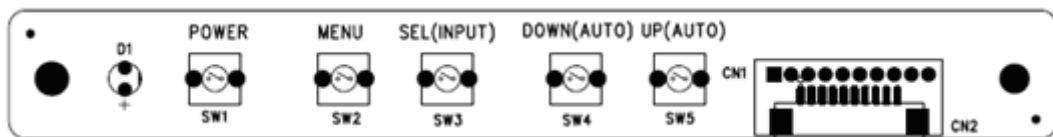


| Top Menu    | Sub Menu  | Control Description  |
|-------------|---|--|
| PICTURE     | <b>- Analog RGB &amp; Digital RGB Input</b>           |  |
|             | <b>Brightness</b>                                     | Adjust the brightness of image. (Increment/Decrement)  |
|             | <b>Back Light</b>                                     | Adjust the luminance of back light. (Increment/Decrement)  |
|             | <b>Contrast</b>                                       | Adjust the level of image. (Increment/Decrement)   |
|             | <b>Auto Adjust</b>                                    | Execute Auto-Adjustment to optimize the displayed image automatically.<br>(analog RGB only)  |
|             | <b>Manual Adjust</b>                                  | Adjust H/V position, H. Phase and H. Frequency (Clock) manually.   |
|             | <b>Reset User Modes</b>                               | Reset user modes to default values for contrast, brightness and the input informations as Vtotal, Hperiod, Hfrequency, position, phase etc. detected by control board. |
|             | <b>Source</b>   | Input signal information. (Read only)  |
|             | <b>- Video Input</b>                                  |  |
|             | <b>Brightness</b>                                     | Adjust the brightness of image. (Increment/Decrement)  |
|             | <b>Back Light</b>                                     | Adjust the luminance of back light. (Increment/Decrement)  |
|             | <b>Contrast</b>                                       | Adjust the level of image. (Increment/Decrement)   |
|             | <b>Sharpness</b>                                      | Adjust the sharpness of imgae. (Increment/Decrement)   |
|             | <b>Color</b>  | Adjust the color expression of image. (Increment/Decrement)  |
| <b>Tint</b> | Adjust the color balance between redish and greenish. |  |
| IMAGE       | <b>Source</b>   | Input signal information. (Read only)  |
|             | <b>Sharpness Filter</b>                               | Adjust the Sharpness filter of the display.  |

|              |                                  |   |
|--------------|----------------------------------|---|
|              | <b>Color Temp.</b>               | Select the preset of the color temperatures such as Reddish, Bluish or User. User's color can be changed by a user.<br>Red - Adjust the RED color temperature for User's color.<br>Green - Adjust the GREEN color temperature for User's color.<br>Blue - Adjust the BLUE color temperature for User's color. |
|              | <b>Gamma</b>                     | Adjust the Gamma of the display.  |
| <b>SETUP</b> | <b>OSD Settings</b>              | Set the OSD menu setup as OSD Language, Transparency, menu position and OSD duration time.  |
|              | <b>Input Search</b>              | Enable or disable to search the input source automatically.<br>In case of analog RGB only, it does not affect.  |
|              | <b>DPMS Activation</b>           | Enable or disable VESA Std. Compliant DPMS.   |
|              | <b>Back Ground Color</b>         | Select the background color used at no signal state or while changed input source. (BLACK / BLUE / GREEN / RED)   |
|              | <b>OSD Lock</b>                  | Lock or Unlock all keys to do control OSD menu.<br>(Available 'Power' Key only at OSD locked)   |
|              | <b>Source Icon</b>               | Enable or disable to show the source icon used at no signal state or while changed input source.  |
|              | <b>Reset to Factory Defaults</b> | Initializes all settings to Factory Default Settings.   |

## 5-2. Keypad Function

### a. Key Description



|                    |                |  |
|--------------------|----------------|--|
| <b>Direct Keys</b> | <b>POWER</b>   | Power On and Off   |
|                    | <b>MENU</b>    | - <b>Enter to Top Menu</b> from no OSD menu.<br>- <b>Exit to no OSD Menu</b> from Top Menu.<br>- <b>Or exit to Top Menu</b> from Sub Menu.                                     |
|                    | <b>SELECT</b>  | - <b>Navigate Top Menu</b> as PICTURE, COLOR, OSD and MISC.<br>- <b>Navigate</b> between each item <b>on Sub Menu</b> .  |
|                    | <b>UP</b>      | - <b>Navigate between Sub Menu and Top Menu</b> .<br>- <b>Select the Item Value</b> to control the item of Sub Menu.<br>- <b>Increase the Item Value</b> of selected Sub Menu. |
|                    | <b>DOWN</b>    | <b>Decrease the Item Value</b> of selected Sub Menu.   |
| <b>Hot Keys</b>    | <b>UP+DOWN</b> | <b>Excutes 'Auto Adjust'</b> to automatically optimize the displayed   |

---

|                  |   |  |
|------------------|---|--|
| (on No OSD Menu) | <b>(Auto Adjust)</b>                    | image, if pressed on No OSD menu. <i>(analog RGB input only)</i>             |
|                  | <b>SELECT</b>                           | <b>Change the current source input</b> to another if pressed on No OSD Menu. |
|                  | <b>MENU+SELECT</b><br><b>(OSD Lock)</b> | <b>Locked or Unlocked OSD menu control.</b> (toggled)                        |

**\* How to control the OSD menu**

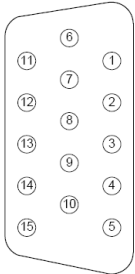
**ex.) Adjust CONTRAST on PICTURE top menu**

- a. Press <MENU> key to enter to PICTURE menu of Top Menu.
- b. Press <UP> key to navigate to Sub Menu. (Selected Brightness on PICTURE Sub Menu)
- c. Press <SEL> key to navigate to Contrast on PICTURE Sub Menu.
- d. Press <DOWN> key to decrease the adjust value or press <UP> key to increase it.
- e. Press <MENU> key to exit to Top Menu and Press it again to exit to No OSD menu.

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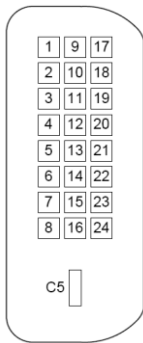
## 6. Cable Pin Configuration

### Analog RGB Cable (15 Pin Mini D-SUB Connector)



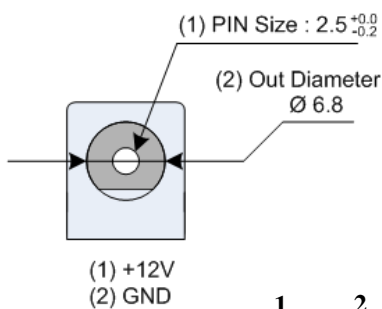
|   |                |    |                              |
|---|----------------|----|------------------------------|
| 1 | Red            | 9  | +5V                          |
| 2 | Green (SOG in) | 10 | Ground - Sync                |
| 3 | Blue           | 11 | No Connection                |
| 4 | Ground         | 12 | DDC Serial Data              |
| 5 | Ground         | 13 | Horizontal or Composite Sync |
| 6 | Ground - Red   | 14 | Vertical Sync                |
| 7 | Ground - Green | 15 | DDC Serial Clock             |
| 8 | Ground - Blue  |    |                              |

### Digital RGB Cable (DVI-D Connector)



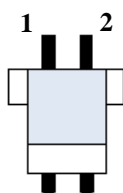
|    |                      |    |                      |
|----|----------------------|----|----------------------|
| 1  | TMDS Data 2-         | 14 | +5V Power            |
| 2  | TMDS Data 2+         | 15 | Ground (for +5V)     |
| 3  | TMDS Data 2/4 Shield | 16 | Hot Plug Detection   |
| 4  | TMDS Data 4-         | 17 | TMDS Data 0-         |
| 5  | TMDS Data 4+         | 18 | TMDS Data 0+         |
| 6  | DDC Serial Clock     | 19 | TMDS Data 0/5 Shield |
| 7  | DDC Serial Data      | 20 | TMDS Data 5-         |
| 8  | No Connect           | 21 | TMDS Data 5+         |
| 9  | TMDS Data 1-         | 22 | TMDS Clock Shield    |
| 10 | TMDS Data 1+         | 23 | TMDS Colck+          |
| 11 | TMDS Data 1/3 Shield | 24 | TMDS Clock-          |
| 12 | TMDS Data 3-         | C5 | Ground               |
| 13 | TMDS Data 3+         |    |                      |

### Power Connector (Using DC Jack, 2Pin) / YAW396-02V 2Pin (Option) (YeonHO Elec)



1 +12V Input                      2 GND

2Pin (Option)



1 +12V Input                      2 GND



## 7. Standard Display Mode

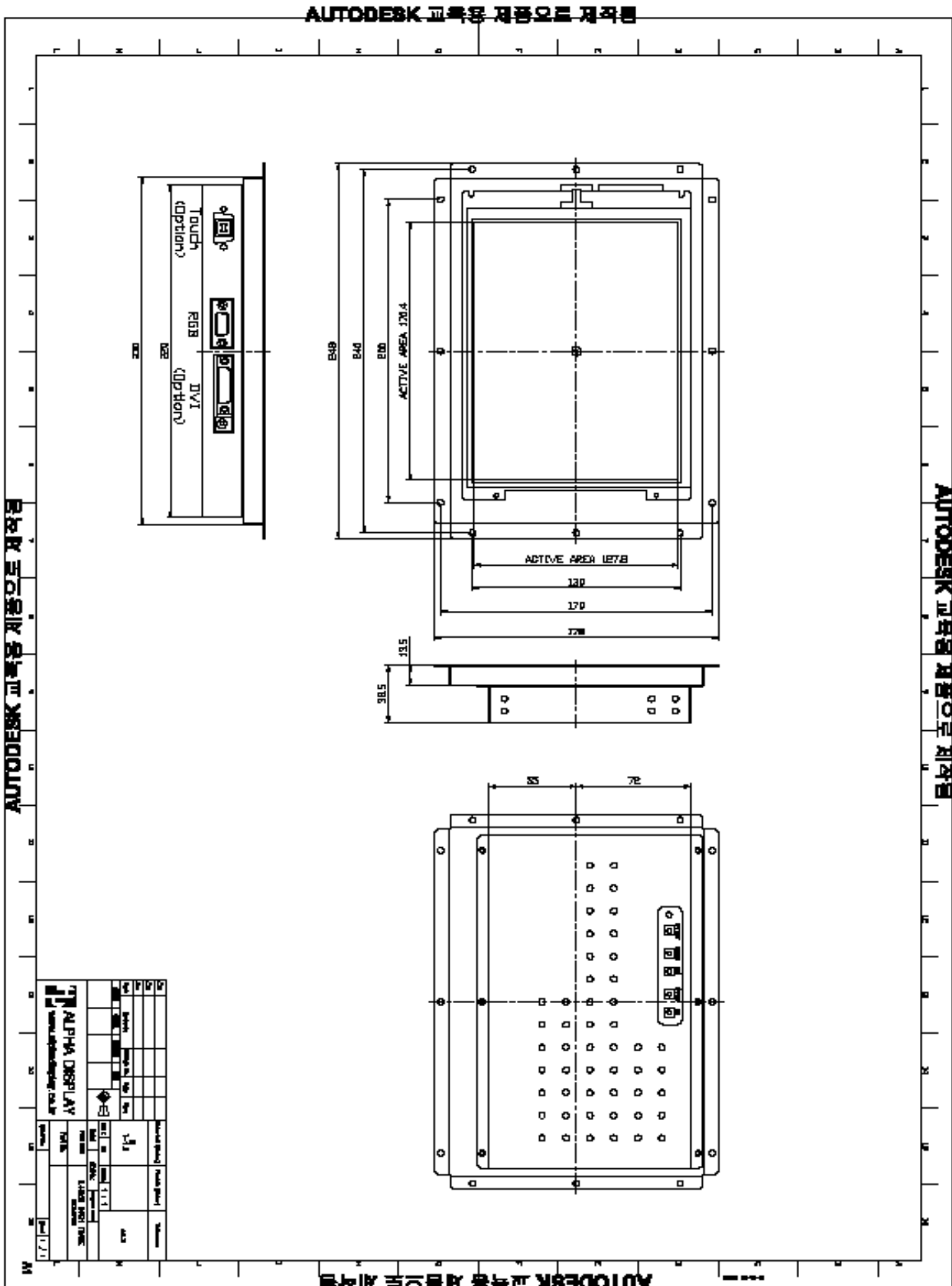
| No | Mode | Resolution | Horizontal |          | Vertical  |          | Pixel clock | Remark |
|----|------|------------|------------|----------|-----------|----------|-------------|--------|
|    |      |            | Frequency  | Polarity | Frequency | Polarity |             |        |
| 1  | DOS  | 640x350    | 31.47 KHz  | P        | 70.1 Hz   | N        | 25.18 MHz   | IBM    |
| 2  |      | 720x400    | 31.47 KHz  | N        | 70.1 Hz   | P        | 28.32 MHz   | VESA   |
| 3  | VGA  | 640x480    | 31.47 KHz  | N        | 60.0 Hz   | N        | 25.18 MHz   | VESA   |
| 4  |      | 640x480    | 35.00 KHz  | N        | 66.7 Hz   | N        | 30.24 MHz   | VESA   |
| 5  |      | 640x480    | 37.86 KHz  | N        | 72.8 Hz   | N        | 31.50 MHz   | VESA   |
| 6  |      | 640x480    | 37.50 KHz  | N        | 75.0 Hz   | N        | 31.50 MHz   | VESA   |
| 7  | SVGA | 800x600    | 35.16 KHz  | N / P    | 56.3 Hz   | N / P    | 36.00 MHz   | VESA   |
| 8  |      | 800x600    | 37.88 KHz  | P        | 60.3 Hz   | P        | 40.00 MHz   | VESA   |
| 9  |      | 800x600    | 48.08 KHz  | P        | 72.2 Hz   | P        | 50.00 MHz   | VESA   |
| 10 |      | 800x600    | 46.88 KHz  | P        | 75.0 Hz   | P        | 49.50 MHz   | VESA   |

**\* Regarding the specific input resolution, please contact to engineering team.**

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### 8. Mechanical Specification

#### ▶ APR-A0843-ORAB (Open Frame)



## Appendix1. Touch Screen Specification

### -Touch Screen

*\* This specification depends on Touch Screen characteristic. Please refer to Touch Screen specification in detail.*

|                       |  |
|-----------------------|--|
| Model                 | Hantouch, H4084A<br>(8.4inch 4-Wire Resistive Touch) |
| Active Area           | 170.4mm x 127.8mm                                    |
| Viewing Area          | 173.4mm x 130.8mm                                    |
| Glass Area            | 184.1mm x 139.5mm                                    |
| Relative Humidity     | 90% at +60 °C  |
| Storage Temperature   | -30 °C to +70 °C                                     |
| Operating Temperature | -20 °C to +60 °C                                     |

### -Touch Controller

*\* This specification depends on Touch Controller characteristic. Please refer to Touch Controller specification in detail.*

|                         |  |
|-------------------------|--|
| Model                   | Hantouch, ETP-MB-S4000UAGG   |
| Communications Protocol | USB type (USB B-type Connector)                                    |
| Dimensions              | 20mm x 75mm  |
| Relative Humidity       | 95% at +60 °C  |
| Storage Temperature     | -40 °C to +80 °C   |
| Operating Temperature   | 0 °C to +50 °C   |
| Power Requirements      | DC +5V (100mA typical, 50mV peak to peak maximum ripple and noise) |

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