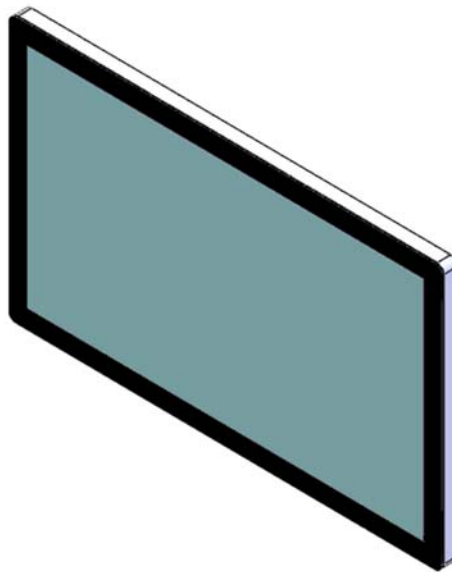


# MODEL : 150P3240

Zero Bezel with PCAP Touchscreen



| Revision | Date       | History  |
|----------|------------|--|
| V0.1     | 2021.02.10 | Initial Release.                                 |
| V1.0     | 2021.03.03 | Changed Model Name INF-3203UHPZIPC-U -> 150P3240 |
|          |            |  |
|          |            |  |
|          |            |  |

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Approved : \_\_\_\_\_

Date : \_\_\_\_\_

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# 1. General Description

## 1.1 Overview

- ◆ SUZOHAPP Open-frame LCD Monitor 150P3240 is a high performance TFT LCD monitor providing a high quality screen image.
- ◆ This monitor supports DVI-D,HDMI and DP input. Other input options are available.
- ◆ Wide input resolution range up to UHD (3840 x 2160@60Hz).
- ◆ It is designed for industrial use with Auto power on, up scaling performance adequate for low-resolution applications and enhanced design margin for reliability.
- ◆ It is available in matching touch and non-touch designs.

## 1.2 General Specifications

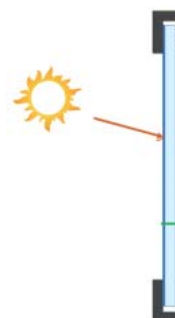
|                         |                                     |   |
|-------------------------|-------------------------------------|---|
| <b>LCD Panel</b>        | <b>Size</b>                         | <b>32.0" Diagonal</b>   |
|                         | <b>Active Display Area</b>          | <b>708.48mm(H) x 398.52mm(V)</b>  |
|                         | <b>Type No.</b>                     | <b>AUO M320QAN01.0</b>  |
|                         | <b>Number of Pixels</b>             | <b>3840 (H) x 2160 (V)</b>  |
|                         | <b>Pixel Arrangement</b>            | <b>RGB Vertical Stripe</b>  |
|                         | <b>Pixel Pitch</b>                  | <b>0.1845mm x 0.1845mm</b>  |
|                         | <b>Color Depth</b>                  | <b>1.07B Colors</b>   |
|                         | <b>Surface Treatments</b>           | <b>Anti-Glare 3H</b>  |
|                         | <b>Viewing Angle<br/>(CR&gt;10)</b> | <b>R/L: 178 degree (89/89)<br/>U/D: 178 degree (89/89)</b>  |
|                         | <b>Contrast Ratio</b>               | <b>Typ. 1000 : 1</b>  |
|                         | <b>Response Time(Typ.)</b>          | <b>12.0ms</b>   |
|                         | <b>Average Brightness</b>           | <b>Typ. 350 cd/ m<sup>2</sup></b>   |
|                         | <b>Frame Rate</b>                   | <b>Typ. 60Hz</b>  |
|                         | <b>Backlight Unit</b>               | <b>LED</b>  |
| <b>Input Resolution</b> | <b>Prime</b>                        | <b>3840 x 2160@60Hz</b>   |
|                         | <b>Standard</b>                     | <b>800x600 @60/72/75Hz<br/>1024x768 @60/70/75Hz,<br/>1280x1024 @60/75Hz, 1366x768@60Hz,<br/>1600x900@60Hz, 1680x1050@60Hz,<br/>1920x1080@60Hz, 1920x1200@60Hz<br/>2560x 1440@60Hz, 3840x2160@60Hz</b> |

|                      |                      |  |
|----------------------|----------------------|--|
| Input Signal Port    | DVI-D                | 24pin DVI Jack   |
|                      | HDMI 2.0             | 19pin HDMI Jack  |
|                      | HDMI 1.4             | 19Pin HDMI Jack  |
|                      | DP(Display Port) 1.2 | 15Pin DP Jack  |
|                      | DVI-D                | 24pin DVI Jack   |
|                      | Power Jack           | Power Mini-Din 4P x 1 Port                             |
| Scanning Frequency   | Horizontal           | 30 ~ 130Khz  |
|                      | Vertical             | 55 ~76Hz   |
| OSD Control          |                      | Menu, Select, Up, Down, Power                          |
| Plug & Play          |                      | VESA DDC 2B Ver1.3                                     |
| Touchscreen          | Touch Panel          | P-CAP Touch : 32.0" Touch / 10 Point (G1-320S-6162-1B) |
|                      | Controller           | ILI2312  |
|                      | Controller Interface | USB 2.0 Type "B"                                       |
| RoHS                 |                      | RoHS2 Compliance                                       |
| Mounting Options     |                      | 200 x 200mm M4 VESA Mounting Holes                     |
| Optional Accessories |                      | Cables, Power Supply                                   |



**Application Caution**

- Precautions for strong light exposure.**  
Strong light exposure causes degradation of polarizer and color filter.



- Using Conditions.**

- Temperature inside the cabinet should be controlled 'at room temp' (0 ~ 40°C) by cooler and fan.

### 1.3 Environmental and Reliability Specification

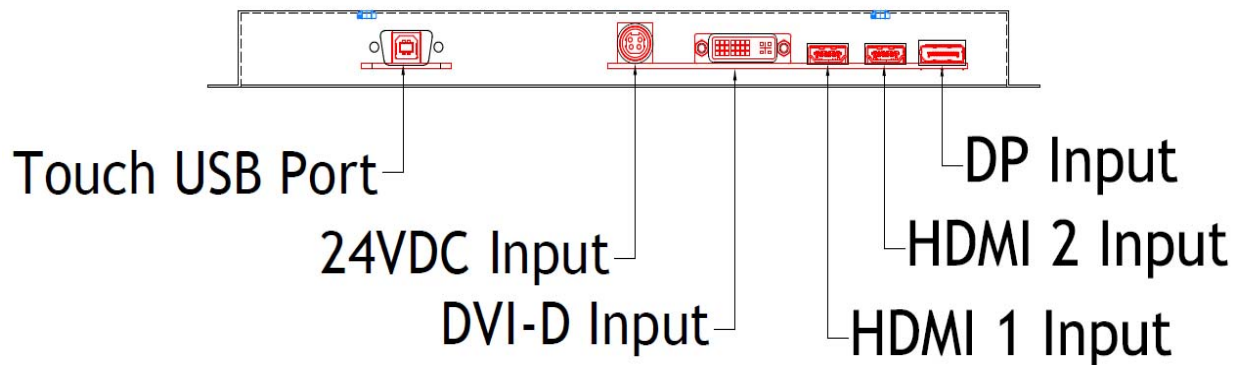
- This specification depends on the LCD panel characteristics. Please refer to the manufacturer's panel specification for details.

| Item                  | Symbol | Min | Max | Unit |
|-----------------------|--------|-----|-----|------|
| Operating Temperature | TOP    | 0   | +50 | °C   |
| Operating Humidity    | HOP    | 10  | 90  | %    |
| Storage Temperature   | TST    | -20 | +60 | °C   |
| Storage Humidity      | HST    | 10  | 90  | %    |

### 1.4 Power Supply Rating

|                             |                         |
|-----------------------------|-------------------------|
| Optional PSU Input Voltage  | AC 100 ~ 240VAC,50/60Hz |
| Optional PSU Output Voltage | DC 24V/5.0A             |
| Monitor DC Input Voltage    | 24VDC                   |
| Power Consumption           | TBD                     |

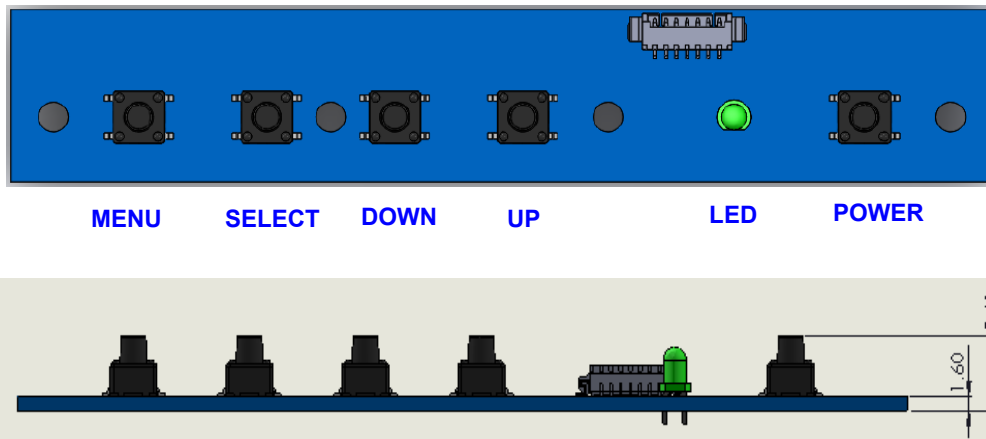
### 1.5 Input/Output Port



## 2. User Control & OSD

### 2.1 Key Control Board

K002



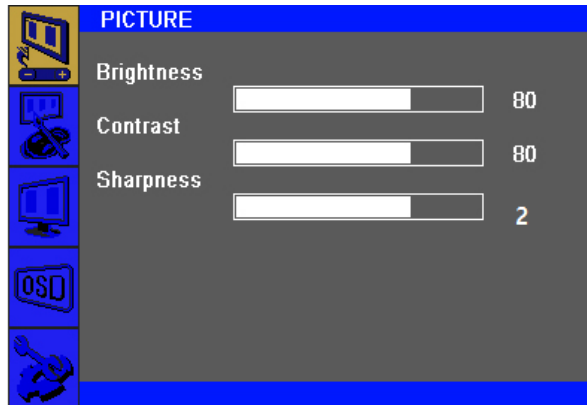
| Button | Function  | Status   | HOT Key                               |
|--------|---|--|---------------------------------------|
| LED    | Indicates operation status  | Green : Normal State<br>Red : Off Mode<br>Green Blinking : DPMS Mode |                                       |
| POWER  | Power on/off  |  |                                       |
| MENU   | Enable MENU Window<br>Disable MENU Window<br>Exit from Sub function |  |                                       |
| SELECT | Select function   |  | No OSD Window,<br>Input Source Change |
| DOWN   | Move to Down or Left  |  | No OSD Window,<br>Auto Color          |
| UP     | Move to Up or Right   |  | No OSD Window,<br>Auto Configuration  |

## 2.2 OSD Control Function

The chosen OSD settings will be stored in memory. The OSD menu can be cleared from the screen by pressing the **MENU** button otherwise it will be automatically cleared after a few second of non-use.

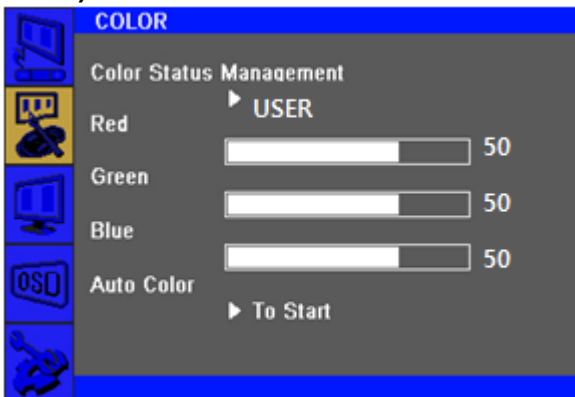
### 2.2.1 OSD Main Menu

#### 1) PICTURE



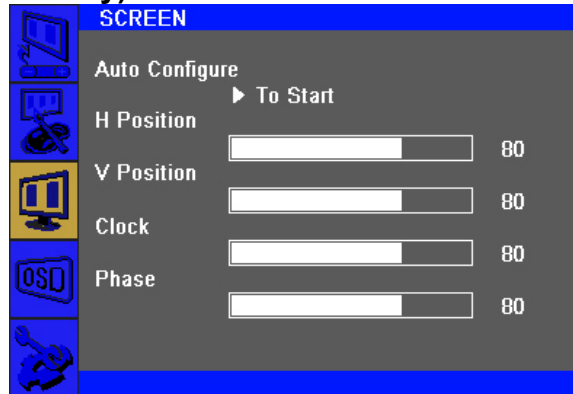
|                      |  |
|----------------------|--|
| Brightness (0 ~ 100) | Increases/decreases monitor Brightness. Default: 100   |
| Contrast (0 ~ 100)   | Increases/decreases monitor Contrast. Default: 100     |
| Sharpness (0 ~ 4)    | Adjusts Sharpness of the displayed images. Default : 2 |

#### 2) COLOR



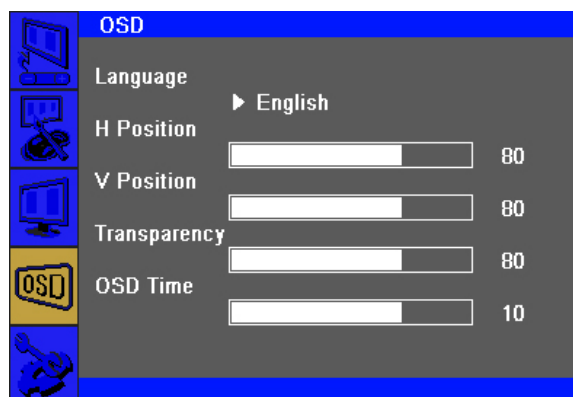
|                         |  |
|-------------------------|--|
| Color Status Management | Selects the display's color temperature. The available color settings "Normal", "Warm", "Cool", "User", "Game" mode.<br>Default : User |
| Red (0 ~ 100)           | Increases/decreases Red Color Temperature. Default : 50  |
| Green (0 ~ 100)         | Increases/decreases Green Color Temperature. Default : 50  |
| Blue (0 ~ 100)          | Increases/decreases Blue Color Temperature. Default : 50   |
| Auto Color              | Automatically adjusts the system color to the input VGA.   |

### 3) SCREEN (VGA input only)



|                      |   |
|----------------------|---|
| Auto Configure       | Automatically adjusts the system clock to the input VGA.                                |
| H Position (0 ~ 100) | Moves the image horizontally on the display in single-pixel increments.<br>Default : 50 |
| V Position (0 ~ 100) | Moves the image vertically on the display in single-pixel increments.<br>Default : 50   |
| Clock (0 ~ 100)      | Allows fine adjustments of the panel's pixel dot clock.<br>Default : 50                 |
| Phase (0 ~ 100)      | Allows fine adjustments of the panel's pixel dot clock phase.<br>Default : 50           |
| WXGA Mode            | Selects WXGA Mode Off, 1024 x 768, 1280 x 768, 1360 x 768, 1366 x 768<br>Default : Off  |

### 4) OSD



|                      |   |
|----------------------|---|
| Language             | Selects the OSD's display language. The available languages are English, Deutsch, Français, Italiano, Español, Korean.<br>Default : English |
| H Position (0 ~ 100) | Adjusts the horizontal location of the OSD menus on the display.<br>Default : 50  |



|                        |   |
|------------------------|---|
| V Position (0 ~ 100)   | Adjusts the vertical location of the OSD menus on the display.<br>Default : 50  |
| Transparency (0 ~ 100) | Adjusts the transparency of the OSD menus on the display.<br>Default : 33   |
| OSD Time (0 ~ 60)      | Adjusts how long the touch monitor will wait without OSD button activity before closing the OSD. The adjustable range is between 0 and 60 seconds. Default : 10 |

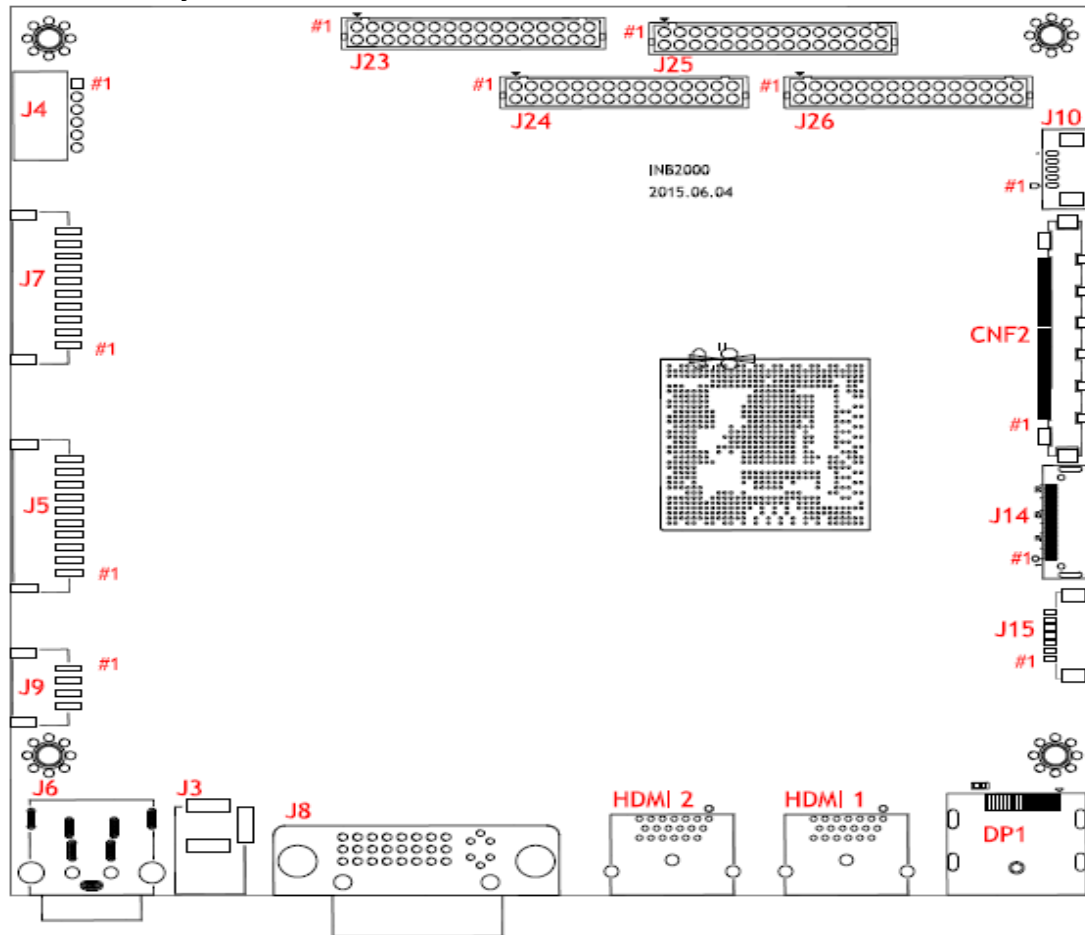
5) SETUP



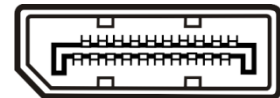
|               |  |
|---------------|--|
| Source        | Selects Input Source DP, DVI, HDMI1(1.4), HDMI2(2.0)   |
| Factory reset | Restores all factory default settings for OSD-adjustable parameters and for Preset Video Mode timings. |
| Aspect        | Switches the scaling method between Full Scaling and Maintain Aspect Ratio.<br>Default : Off           |
| DP Option     | Selects DP Signal : DP1.1(30Hz) / DP1.2(60Hz)  |

### 3. Connector Description

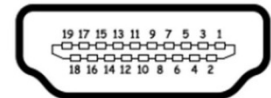
#### 3.1 Summary



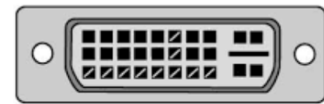
| Reference   | Item      | Description                       | Type        | Manufacture |
|-------------|-----------|-----------------------------------|-------------|-------------|
| DP1         | Connector | DP Input Connector                | DP          | -           |
| CNF2        | Connector | V-By-One/DP Connector(8 LANE)     | FI-RE51S-HF | JAE         |
| J3          | Connector | 12V Input Dc power Jack           | DJ05H-250   |             |
| J4          | Connector | 12V/5V Output DC power            | SMAW200-6   | YEONHO      |
| J5,J7       | Connector | Inverter Power Out                | 20010WS-10  | YEONHO      |
| J6          | Connector | 24V Input DC power Jack           | KPJ-4S      | -           |
| J8          | Connector | DVI-D Input(TMDS) Connector       | DVI-D24P    | -           |
| J9          | Connector | 24V Input DC power Connector      | 20022WS-4P  | YEONHO      |
| J10         | Connector | RS232 Control , Auto dimming      | 12505WR-05P | YEONHO -    |
| J15         | Connector | OSD Interface connector           | 12505WR-07P | YEONHO      |
| J14         | Connector | eDP Connector (4 LANE)            | 20347-030E  | I-PEX       |
| J23         | Connector | LCD Interface connector(2Ch LVDS) | YDW200-32P  | YEONHO -    |
| J25,J26,J27 | Connector | LCD Interface connector(2Ch LVDS) | YDW200-30P  | YEONHO      |
| HDMI1       | Connector | HDMI Input(TMDS) Connector        | HDMI-19P    | -           |
| HDMI2       | Connector | HDMI Input(TMDS) Connector        | HDMI-19P    | -           |


**3.2 DP1 : DP 1.2 (Display Port) Connector**

| Pin No. | Symbol | Description        |
|---------|--------|--------------------|
| 1       | Red1   | Red analog input   |
| 2       | Green1 | Green analog input |
| 3       | Blue1  | Blue analog input  |
| 4       | GND    | Ground             |
| 5       | GND    | Ground             |
| 6       | GND    | Ground             |
| 7       | GND    | Ground             |
| 8       | GND    | Ground             |
| 9       | NC     | Not connected      |
| 10      | GND    | Ground             |
| 11      | GND    | Ground             |
| 12      | DSDA   | DDC-SDA            |
| 13      | HSYNC  | Horizontal Sync    |
| 14      | VSYSN  | Vertical Sync      |
| 15      | DSCL   | Serial Clock Input |


**3.3 HDMI1 (1.4) , HDMI2 (2.0) : HDMI Input(TMDS) Connector**

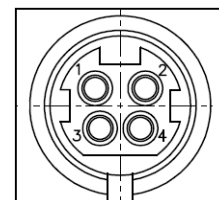
| Pin No. | Symbol            | Description                             |
|---------|-------------------|---|
| 1       | TMDS DATA2-       | TMDS DATA2 Differential Negative Signal |
| 2       | TMDS DATA2+       | TMDS DATA2 Differential Positive Signal |
| 3       | TMDS DATA2 Shield | Shield for TMDS Channel #2              |
| 4       | TMDS DATA1-       | TMDS DATA1 Differential Negative Signal |
| 5       | TMDS DATA1+       | TMDS DATA1 Differential Positive Signal |
| 6       | TMDS DATA1 Shield | Shield for TMDS Channel #1              |
| 7       | TMDS DATA0-       | TMDS DATA0 Differential Negative Signal |
| 8       | TMDS DATA0+       | TMDS DATA0 Differential Positive Signal |
| 9       | TMDS DATA0 Shield | Shield for TMDS Channel #0              |
| 10      | TMDS CLOCK Shield | Shield for TMDS Clock differential Pair |
| 11      | TMDS CLOCK+       | TMDS DATA0 Differential Positive Signal |
| 12      | TMDS CLOCK-       | TMDS DATA0 Differential Negative Signal |
| 13      | CEC               | CEC Function                            |
| 14      | NC                | No Connection                           |
| 15      | DDC Clock         | DDC Clock Signal                        |
| 16      | DDC data          | DDC Data Signal                         |
| 17      | GND               | GND                                     |
| 18      | +5V Power         | +5V Power                               |
| 19      | HPD               | Identify the presence of a monitor      |


**3.4 J8 : DVI-D Input(TMDS) Connector**

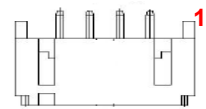
| Pin No. | Symbol            | Description                                  |
|---------|-------------------|--|
| 1       | TMDS DATA2-       | TMDS DATA2 Differential Negative Signal      |
| 2       | TMDS DATA2+       | TMDS DATA2 Differential Positive Signal      |
| 3       | TMDS DATA2 Shield | Shield for TMDS Channel #2                   |
| 4       | NC                | No Connection                                |
| 5       | NC                | No Connection                                |
| 6       | DDC Clock         | The Data Line for the DDC Interface          |
| 7       | DDC Data          | The Clock Line for the DDC Interface         |
| 8       | NC                | No Connection                                |
| 9       | TMDS DATA1-       | TMDS DATA1 Differential Negative Signal      |
| 10      | TMDS DATA1+       | TMDS DATA1 Differential Positive Signal      |
| 11      | TMDS DATA1 Shield | Shield for TMDS Channel #1                   |
| 12      | NC                | No Connection                                |
| 13      | NC                | No Connection                                |
| 14      | +5V Power         | +5 Volt signal for EDID (Un-powered Monitor) |
| 15      | GND(for +5V)      | Ground for +5 Volt Power pin, Sync return    |
| 16      | HPD               | Identify the presence of a monitor           |
| 17      | TMDS DATA0-       | TMDS DATA0 Differential Negative Signal      |
| 18      | TMDS DATA0+       | TMDS DATA0 Differential Positive Signal      |
| 19      | TMDS DATA0 Shield | Shield for TMDS Channel #0                   |
| 20      | NC                | No Connection                                |
| 21      | NC                | No Connection                                |
| 22      | TMDS CLOCK Shield | Shield for TMDS Clock differential Pair      |
| 23      | TMDS CLOCK+       | TMDS DATA0 Differential Positive Signal      |
| 24      | TMDS CLOCK-       | TMDS DATA0 Differential Negative Signal      |

**3.5 J3: 12V Power Input Jack**

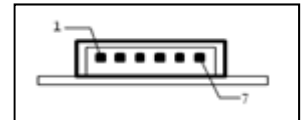

| Pin No. | Symbol | Description |
|---------|--------|-------------|
| -       | GND    | Ground      |
| +       | VCC    | DC 12V      |


**3.6 J6: 24 Power Input Jack**

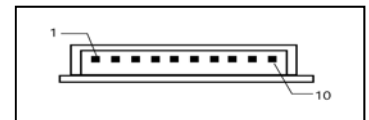
| Pin No. | Symbol | Description |
|---------|--------|-------------|
| 1,3     | GND    | Ground      |
| 2,4     | VCC    | DC 24V      |


**3.7 J9: SMPS Power Output Connector**

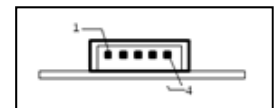
| Pin No. | Symbol | Description      |
|---------|--------|------------------|
| 1,2     | VCC    | DC 24V or DC 12V |
| 3,4     | GND    | GND              |


**3.8 J4: DC Power Output**

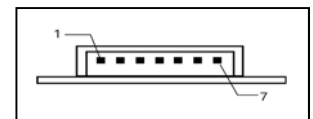
| Pin No. | Symbol | Description |
|---------|--------|-------------|
| 1,2     | VCC    | +12V        |
| 3,4     | VCC    | +5V         |
| 5,6     | GND    | Ground      |


**3.9 J5,J7 : Backlight Inverter connector**

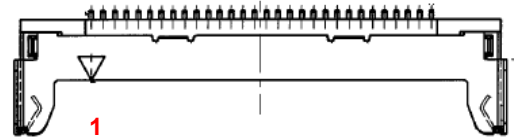
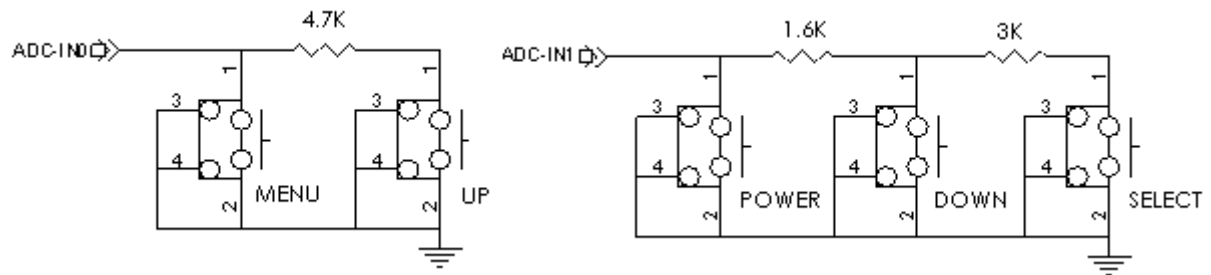
| Pin No. | Symbol          | Description                                  |
|---------|-----------------|--|
| 1,2,3,4 | B+              | B+ ( 12V)                                    |
| 5,6,7,8 | GND             | Ground                                       |
| 9       | Inverter On/Off | Inverter digital ON(3.3V)/OFF(0V) signal     |
| 10      | DIM-ADJ         | DIM-adjustment analog dimming control signal |


**3.10 J10: Auto-Dimming/RS232**

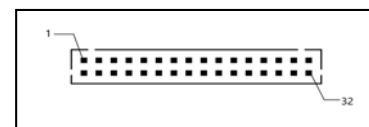
| Pin No. | Symbol       | Description         |
|---------|--------------|---------------------|
| 1       | VCC          | +5V power for RS232 |
| 2       | RS232        | RS232 RX            |
| 3       | RS232        | RS232 TX            |
| 4       | Auto- Bright | Auto-Dimming        |
| 5       | GND          | Ground              |


**3.11 J15: OSD Board connector**

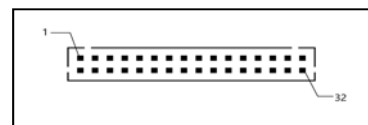
| Pin No. | Symbol  | Description                |
|---------|---------|----------------------------|
| 1       | VCC     | +5V power for IR sensor    |
| 2       | IRQ     | Infrared rays signal line. |
| 3       | LED1    | Green LED                  |
| 4       | LED2    | Red LED                    |
| 5       | GND     | Ground                     |
| 6       | ADC-IN0 | Menu, Up                   |
| 7       | ADC-IN1 | Power, Down, Up            |


**3.12 J14 : eDP 4LANE Interface**

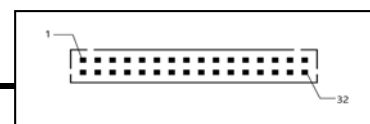
| Pin No. | Symbol   | Description           |
|---------|----------|-----------------------|
| 1       | GND      | GND                   |
| 2       | NC       | NC                    |
| 3       | GND      | GND                   |
| 4       | GND      | GND                   |
| 5       | DPTX_L3N | DPTX_L3N              |
| 6       | DPTX_L3P | DPTX_L3P              |
| 7       | GND      | GND                   |
| 8       | DPTX_L2N | DPTX_L2N              |
| 9       | DPTX_L2P | DPTX_L2P              |
| 10      | GND      | GND                   |
| 11      | DPTX_L1N | DPTX_L1N              |
| 12      | DPTX_L1P | DPTX_L1P              |
| 13      | GND      | GND                   |
| 14      | DPTX_L0N | DPTX_L0N              |
| 15      | DPTX_L0P | DPTX_L0P              |
| 16      | GND      | GND                   |
| 17      | TX_AUX_P | TX_AUX_P              |
| 18      | TX_AUX_N | TX_AUX_N              |
| 19      | GND      | GND                   |
| 20      | TX HPD   | TX HPD                |
| 21      | GND      | GND                   |
| 22      | NC       | NC                    |
| 23      | NC       | NC                    |
| 24      | GND      | GND                   |
| 25      | NC       | NC                    |
| 26      | MOD_PWR  | Panel Power (12V, 5V) |
| 27      | MOD_PWR  | Panel Power (12V, 5V) |
| 28      | MOD_PWR  | Panel Power (12V, 5V) |
| 29      | MOD_PWR  | Panel Power (12V, 5V) |
| 30      | MOD_PWR  | Panel Power (12V, 5V) |


**3.13 J23 : LCD LVDS Interface connector (10bit 2Ch LVDS)**

| Pin No. | Symbol  | Description                                 |
|---------|---------|---|
| 1       | MOD_PWR | Panel Power (12V, 5V)                       |
| 2       | MOD_PWR | Panel Power (12V, 5V)                       |
| 3       | MOD_PWR | Panel Power (12V, 5V)                       |
| 4       | MOD_PWR | Panel Power (12V, 5V)                       |
| 5       | MOD_PWR | Panel Power (12V, 5V)                       |
| 6       | MOD_PWR | Panel Power (12V, 5V)                       |
| 7       | A0N-ODD | Positive(-) LVDS differential second 0 data |
| 8       | A0P-ODD | Negative(+) LVDS differential second 0 data |
| 9       | A1N-ODD | Positive(-) LVDS differential second 1 data |
| 10      | A1P-ODD | Negative(+) LVDS differential second 1 data |
| 11      | A2N-ODD | Positive(-) LVDS differential second 2 data |
| 12      | A2P-ODD | Negative(+) LVDS differential second 2 data |
| 13      | ACN-ODD | Positive(-) LVDS differential second Clock  |
| 14      | ACP-ODD | Negative(+) LVDS differential second Clock  |
| 15      | A3N-ODD | Positive(-) LVDS differential second 3 data |
| 16      | A3P-ODD | Negative(+) LVDS differential second 3 data |
| 17      | A4N-ODD | Positive(-) LVDS differential second 4 data |
| 18      | A4P-ODD | Negative(+) LVDS differential second 4 data |
| 19      | GND     | GND   |
| 20      | GND     | GND   |
| 21      | B0N-ODD | Positive(-) LVDS differential second 0 data |
| 22      | B0P-ODD | Negative(+) LVDS differential second 0 data |
| 23      | B1N-ODD | Positive(-) LVDS differential second 1 data |
| 24      | B1P-ODD | Negative(+) LVDS differential second 1 data |
| 25      | B2N-ODD | Positive(-) LVDS differential second 2 data |
| 26      | B2P-ODD | Negative(+) LVDS differential second 2 data |
| 27      | BCN-ODD | Positive(-) LVDS differential second Clock  |
| 28      | BCP-ODD | Negative(+) LVDS differential second Clock  |
| 29      | B3N-ODD | Positive(-) LVDS differential second 3 data |
| 30      | B3P-ODD | Negative(+) LVDS differential second 3 data |
| 31      | B4N-ODD | Positive(-) LVDS differential second 4 data |
| 32      | B4P-ODD | Negative(+) LVDS differential second 4 data |


**3.14 J26 : LCD LVDS Interface connector (10bit 2Ch LVDS)**

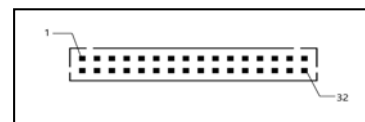
| Pin No. | Symbol      | Description                                 |
|---------|-------------|---|
| 1       | ODC SEL     | ODC SELECT                                  |
| 2       | PANEL PWM   | PANEL PWM                                   |
| 3       | LVDS Format | LVDS Fromat                                 |
| 4       | GND         | GND   |
| 5       | C0N-ODD     | Positive(-) LVDS differential second 0 data |
| 6       | C0P-ODD     | Negative(+) LVDS differential second 0 data |
| 7       | C1N-ODD     | Positive(-) LVDS differential second 1 data |
| 8       | C1P-ODD     | Negative(+) LVDS differential second 1 data |
| 9       | C2N-ODD     | Positive(-) LVDS differential second 2 data |
| 10      | C2P-ODD     | Negative(+) LVDS differential second 2 data |
| 11      | CCN-ODD     | Positive(-) LVDS differential second Clock  |
| 12      | CCP-ODD     | Negative(+) LVDS differential second Clock  |
| 13      | C3N-ODD     | Positive(-) LVDS differential second 3 data |
| 14      | C3P-ODD     | Negative(+) LVDS differential second 3 data |
| 15      | C4N-ODD     | Positive(-) LVDS differential second 4 data |
| 16      | C4P-ODD     | Negative(+) LVDS differential second 4 data |
| 17      | GND         | GND   |
| 18      | GND         | GND   |
| 19      | D0N-ODD     | Positive(-) LVDS differential second 0 data |
| 20      | D0P-ODD     | Negative(+) LVDS differential second 0 data |
| 21      | D1N-ODD     | Positive(-) LVDS differential second 1 data |
| 22      | D1P-ODD     | Negative(+) LVDS differential second 1 data |
| 23      | D2N-ODD     | Positive(-) LVDS differential second 2 data |
| 24      | D2P-ODD     | Negative(+) LVDS differential second 2 data |
| 25      | DCN-ODD     | Positive(-) LVDS differential second Clock  |
| 26      | DCP-ODD     | Negative(+) LVDS differential second Clock  |
| 27      | D3N-ODD     | Positive(-) LVDS differential second 3 data |
| 28      | D3P-ODD     | Negative(+) LVDS differential second 3 data |
| 29      | D4N-ODD     | Positive(-) LVDS differential second 4 data |
| 30      | D4P-ODD     | Negative(+) LVDS differential second 4 data |
|         |             |   |
|         |             |   |





**3.15 J25 : LCD LVDS Interface connector (10bit 2Ch LVDS)**

| Pin No. | Symbol      | Description                                 |
|---------|-------------|---|
| 1       | ODC SEL     | ODC SELECT                                  |
| 2       | PANEL PWM   | PANEL PWM                                   |
| 3       | LVDS Format | LVDS Fromat                                 |
| 4       | GND         | GND   |
| 5       | E0N-ODD     | Positive(-) LVDS differential second 0 data |
| 6       | E0P-ODD     | Negative(+) LVDS differential second 0 data |
| 7       | E1N-ODD     | Positive(-) LVDS differential second 1 data |
| 8       | E1P-ODD     | Negative(+) LVDS differential second 1 data |
| 9       | E2N-ODD     | Positive(-) LVDS differential second 2 data |
| 10      | E2P-ODD     | Negative(+) LVDS differential second 2 data |
| 11      | ECN-ODD     | Positive(-) LVDS differential second Clock  |
| 12      | ECP-ODD     | Negative(+) LVDS differential second Clock  |
| 13      | E3N-ODD     | Positive(-) LVDS differential second 3 data |
| 14      | E3P-ODD     | Negative(+) LVDS differential second 3 data |
| 15      | E4N-ODD     | Positive(-) LVDS differential second 4 data |
| 16      | E4P-ODD     | Negative(+) LVDS differential second 4 data |
| 17      | GND         | GND   |
| 18      | GND         | GND   |
| 19      | F0N-ODD     | Positive(-) LVDS differential second 0 data |
| 20      | F0P-ODD     | Negative(+) LVDS differential second 0 data |
| 21      | F1N-ODD     | Positive(-) LVDS differential second 1 data |
| 22      | F1P-ODD     | Negative(+) LVDS differential second 1 data |
| 23      | F2N-ODD     | Positive(-) LVDS differential second 2 data |
| 24      | F2P-ODD     | Negative(+) LVDS differential second 2 data |
| 25      | FCN-ODD     | Positive(-) LVDS differential second Clock  |
| 26      | FCP-ODD     | Negative(+) LVDS differential second Clock  |
| 27      | F3N-ODD     | Positive(-) LVDS differential second 3 data |
| 28      | F3P-ODD     | Negative(+) LVDS differential second 3 data |
| 29      | F4N-ODD     | Positive(-) LVDS differential second 4 data |
| 30      | F4P-ODD     | Negative(+) LVDS differential second 4 data |
|         |             |   |
|         |             |   |


**3.16 J27 : LCD LVDS Interface connector (10bit 2Ch LVDS)**

| Pin No. | Symbol      | Description                                 |
|---------|-------------|---|
| 1       | ODC SEL     | ODC SELECT                                  |
| 2       | PANEL PWM   | PANEL PWM                                   |
| 3       | LVDS Format | LVDS Fromat                                 |
| 4       | GND         | GND   |
| 5       | G0N-ODD     | Positive(-) LVDS differential second 0 data |
| 6       | G0P-ODD     | Negative(+) LVDS differential second 0 data |
| 7       | G1N-ODD     | Positive(-) LVDS differential second 1 data |
| 8       | G1P-ODD     | Negative(+) LVDS differential second 1 data |
| 9       | G2N-ODD     | Positive(-) LVDS differential second 2 data |
| 10      | G2P-ODD     | Negative(+) LVDS differential second 2 data |
| 11      | GCN-ODD     | Positive(-) LVDS differential second Clock  |
| 12      | GCP-ODD     | Negative(+) LVDS differential second Clock  |
| 13      | G3N-ODD     | Positive(-) LVDS differential second 3 data |
| 14      | G3P-ODD     | Negative(+) LVDS differential second 3 data |
| 15      | G4N-ODD     | Positive(-) LVDS differential second 4 data |
| 16      | G4P-ODD     | Negative(+) LVDS differential second 4 data |
| 17      | GND         | GND   |
| 18      | GND         | GND   |
| 19      | H0N-ODD     | Positive(-) LVDS differential second 0 data |
| 20      | H0P-ODD     | Negative(+) LVDS differential second 0 data |
| 21      | H1N-ODD     | Positive(-) LVDS differential second 1 data |
| 22      | H1P-ODD     | Negative(+) LVDS differential second 1 data |
| 23      | H2N-ODD     | Positive(-) LVDS differential second 2 data |
| 24      | H2P-ODD     | Negative(+) LVDS differential second 2 data |
| 25      | HCN-ODD     | Positive(-) LVDS differential second Clock  |
| 26      | HCP-ODD     | Negative(+) LVDS differential second Clock  |
| 27      | H3N-ODD     | Positive(-) LVDS differential second 3 data |
| 28      | H3P-ODD     | Negative(+) LVDS differential second 3 data |
| 29      | H4N-ODD     | Positive(-) LVDS differential second 4 data |
| 30      | H4P-ODD     | Negative(+) LVDS differential second 4 data |
|         |             |   |
|         |             |   |

**3.17 CNF2 : LCD V-by-one / eDP Interface connector (8bit / 10bit)**

| Pin No.     | Symbol              | Description                |
|-------------|---------------------|----------------------------|
| 1           | MOD_PWR             | Panel Power (12V, 5V)      |
| 2           | MOD_PWR             | Panel Power (12V, 5V)      |
| 3           | MOD_PWR             | Panel Power (12V, 5V)      |
| 4           | MOD_PWR             | Panel Power (12V, 5V)      |
| 5           | MOD_PWR             | Panel Power (12V, 5V)      |
| 6           | MOD_PWR             | Panel Power (12V, 5V)      |
| 7, 8        | GND                 | GND                        |
| 9           | V-by-one Bit Select | V-by-one 8bit/10bit Select |
| 10          | SDA                 | V-by-one IICSDA            |
| 11          | SCL                 | V-by-one IICSCL            |
| 12          | VTX_HPD             | V-by-one Hot Plug Detect   |
| 13          | AUX_CH_N1           | AUX_CH_N1                  |
| 14          | AUX_CH_P1           | AUX_CH_P1                  |
| 15          | GND                 | GND                        |
| 16          | VTX_TX7P            | VTX_TX7P                   |
| 17          | VTX_TX7N            | VTX_TX7N                   |
| 18          | GND                 | GND                        |
| 19          | VTX_TX6P            | VTX_TX6P                   |
| 20          | VTX_TX6N            | VTX_TX6N                   |
| 21          | GND                 | GND                        |
| 22          | VTX_TX5P            | VTX_TX5P                   |
| 23          | VTX_TX5N            | VTX_TX5N                   |
| 24          | GND                 | GND                        |
| 25          | VTX_TX4P            | VTX_TX4P                   |
| 26          | VTX_TX4N            | VTX_TX4N                   |
| 27          | VTX_PLL_Lock        | VTX_PLL_Lock               |
| 28          | AUX_CH_N2           | AUX_CH_N2                  |
| 29          | AUX_CH_P2           | AUX_CH_P2                  |
| 30          | GND                 | GND                        |
| 31          | VTX_TX3P            | VTX_TX3P                   |
| 32          | VTX_TX3N            | VTX_TX3N                   |
| 33          | GND                 | GND                        |
| 34          | VTX_TX2P            | VTX_TX2P                   |
| 35          | VTX_TX2N            | VTX_TX2N                   |
| 36          | GND                 | GND                        |
| 37          | VTX_TX1P            | VTX_TX1P                   |
| 38          | VTX_TX1N            | VTX_TX1N                   |
| 39          | GND                 | GND                        |
| 40          | VTX_TX0P            | VTX_TX0P                   |
| 41          | VTX_TX0N            | VTX_TX0N                   |
| 42,43,44    | GND                 | GND                        |
| 45,46,47    | GND                 | GND                        |
| 48,49,50,51 | GND                 | GND                        |

## 4. Standard Display Modes

| Spec<br>Mode   | Pixel<br>Freq. | Horizontal Timing |         |       |        | Vertical Timing |        |       |        |
|----------------|----------------|-------------------|---------|-------|--------|-----------------|--------|-------|--------|
|                |                | Sync<br>Polar     | Freq.   | Total | Active | SP              | Freq.  | Total | Active |
|                | MHz            |                   | KHz     | Pixel | Pixel  |                 | Hz     | Line  | Line   |
| 640*350@70Hz   | 25.144         | P                 | 31.430  | 800   | 640    | N               | 70.000 | 449   | 350    |
| 640*400@70Hz   | 28.287         | N                 | 31.430  | 800   | 640    | P               | 70.000 | 449   | 400    |
| 720*400@70Hz   | 28.287         | N                 | 31.430  | 900   | 720    | P               | 70.000 | 449   | 400    |
| 640*480@60Hz   | 28.175         | N                 | 31.469  | 800   | 640    | N               | 59.940 | 525   | 480    |
| 640*480@72Hz   | 31.500         | N                 | 37.861  | 832   | 640    | N               | 72.809 | 520   | 480    |
| 640*480@75Hz   | 31.500         | N                 | 37.500  | 840   | 640    | N               | 75.000 | 500   | 480    |
| 800*600@56 Hz  | 36.000         | P                 | 35.156  | 1024  | 800    | P               | 56.250 | 625   | 600    |
| 800*600@60Hz   | 40.000         | P                 | 37.879  | 1056  | 800    | P               | 60.317 | 628   | 600    |
| 800*600@72Hz   | 50.000         | P                 | 48.077  | 1040  | 800    | P               | 72.188 | 666   | 600    |
| 800*600@75Hz   | 49.500         | P                 | 46.875  | 1056  | 800    | P               | 75.000 | 625   | 600    |
| 1024*768@60Hz  | 65.000         | N                 | 48.363  | 1344  | 1024   | N               | 60.005 | 806   | 768    |
| 1024*768@70Hz  | 75.000         | N                 | 56.476  | 1328  | 1024   | P               | 70.070 | 806   | 768    |
| 1024*768@75Hz  | 78.750         | P                 | 60.023  | 1312  | 1024   | P               | 75.030 | 800   | 768    |
| 1280*720@60Hz  | 74.500         | P                 | 44.772  | 1664  | 1280   | P               | 59.855 | 748   | 720    |
| 1280*768@60Hz  | 68.250         | P                 | 47.396  | 1440  | 1280   | N               | 59.995 | 790   | 768    |
| 1360*768@60Hz  | 84.75          | P                 | 47.72   | 1776  | 1360   | P               | 59.799 | 798   | 768    |
| 1280*1024@60Hz | 108.000        | P                 | 63.981  | 1688  | 1280   | P               | 60.020 | 1066  | 1024   |
| 1280*1024@75Hz | 135.000        | P                 | 79.976  | 1688  | 1280   | P               | 75.035 | 1066  | 1024   |
| 1440*1050@60Hz | 101.000        | P                 | 64.744  | 1560  | 1400   | N               | 59.948 | 1080  | 1050   |
| 1680*1050@60Hz | 119.125        | P                 | 64.742  | 1840  | 1680   | N               | 59.946 | 1080  | 1050   |
| 1600*1200@60Hz | 162.000        | P                 | 75.000  | 2160  | 1600   | P               | 60.00  | 1250  | 1200   |
| 1920*1080@60Hz | 138.625        | P                 | 66.647  | 2080  | 1920   | N               | 59.988 | 1111  | 1080   |
| 1920*1200@60Hz | 154.125        | P                 | 74.099  | 2080  | 1920   | N               | 59.999 | 1235  | 1200   |
| 2560*1440@60Hz | 241.000        | P                 | 88.800  | 2720  | 2560   | N               | 60.010 | 1481  | 1440   |
| 3840*2160@60Hz | 585.980        |                   | 129.600 | 4480  | 3840   |                 | 60.000 | 2180  | 2160   |
|                |                |                   |         |       |        |                 |        |       |        |
|                |                |                   |         |       |        |                 |        |       |        |

## 5. LED Backlight Driver Board Specification

### 5.1 Electrical Specification

| Item                  | Symbol   | Spec       | Unit | Remarks |
|-----------------------|----------|------------|------|---------|
| Input Voltage 1       | Vin      | 22.8 ~25.2 | V    |         |
| Input Voltage 2       | ON / OFF | 0 ~ 5.0    | V    |         |
| Operating Temperature | TOP      | 0 ~ 50     | °C   |         |
| Storage Temperature   | Tstg     | -20 ~60    | °C   |         |
| Relative Humidity     | RH       | 80         | %    |         |

### 5.2 Control Signal

| Item    | Symbol | Status | Action  | Remarks |
|---------|--------|--------|---------|---------|
| CN1 #12 | ON/OFF | HIGH   | LED-ON  | 5.0V    |
|         |        | LOW    | LED-OFF | 0V      |

### 5.3 Output Characteristics

| NO | Item                     | Symbol | Condition         | Min. | Typ. | Max  | Unit |
|----|--------------------------|--------|-------------------|------|------|------|------|
| 1  | Input Voltage            | Vin    | -                 | 21.6 | 24.0 | 26.4 | VDC  |
| 2  | Input Current            | Iin    | Vin=24V<br>Dim=0V | -    | -    | 2.5  | A    |
| 3  | Output Voltage           | Vout   | Vin=24V<br>Dim=0V |      | 42.9 |      | VDC  |
| 4  | Output Current           | Iout   | Vin=24V<br>Dim=0V | 110  | 120  | 130  | mA   |
| 5  | Backlight On/Off Control | ON     | -                 | 3.0  |      | 5.0  | VDC  |
|    |                          | OFF    | -                 | -0.3 |      | 0.8  | VDC  |

### 5.4 Interface

#### 5.4.1 CN1 Connector: 20022WR-14AML(Yeon-Ho) or EQ

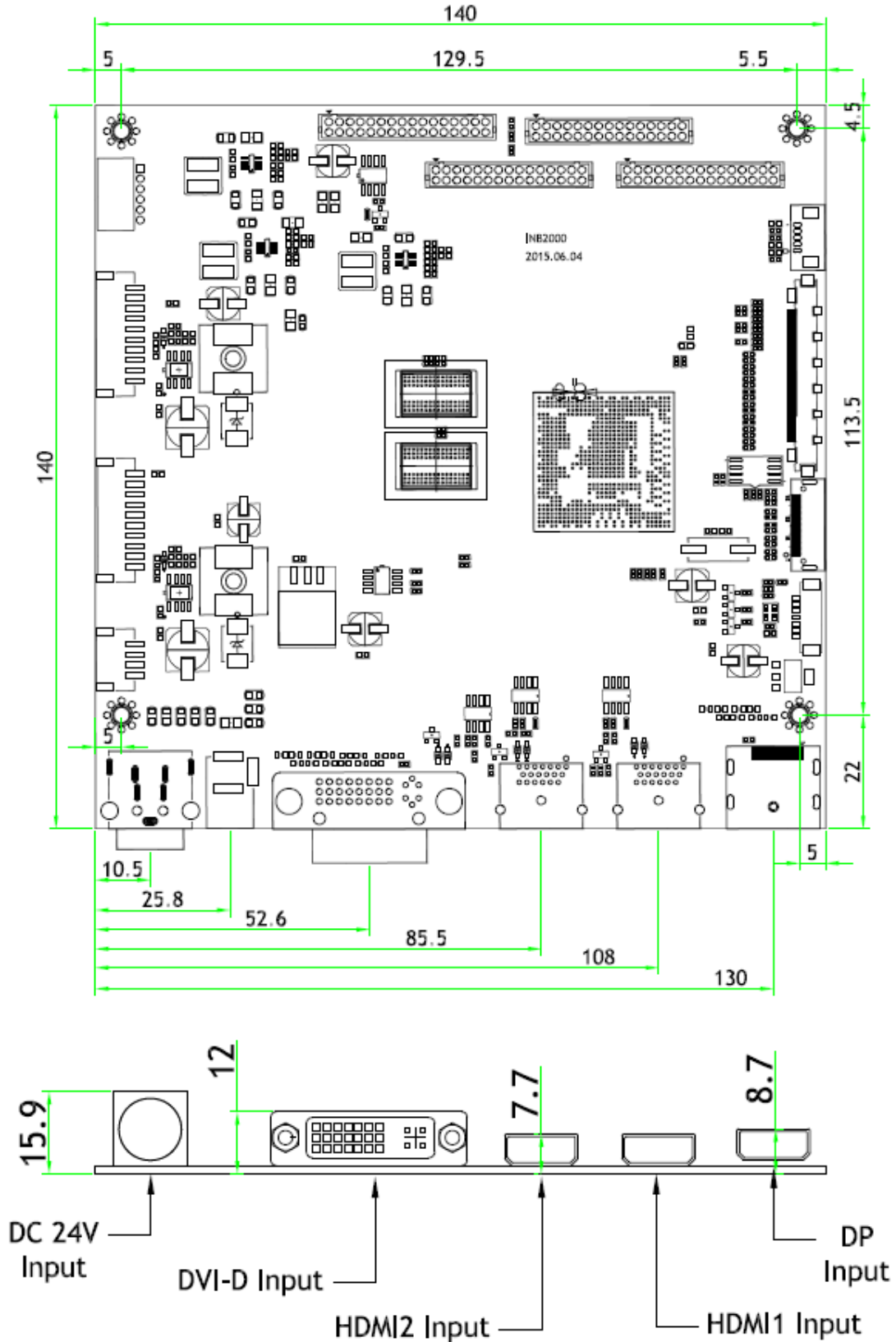
| Pin No        | Symbol | Remark                                 |
|---------------|--------|--|
| 1,2,3,4,5     | VIN    | Voltage Input 24.0V                    |
| 6,7,8,9,10,11 | GND    | GND                                    |
| 13            | NC     | NC                                     |
| 12            | ON/OFF | LED Driver ON/OFF Signal (Active High) |
| 14            | DIM    | 0V(MAX) ~ 5V(Min)                      |

#### 5.4.2 CN2,CN3 Connector: 12507WR-06(Yeon-Ho) or EQ

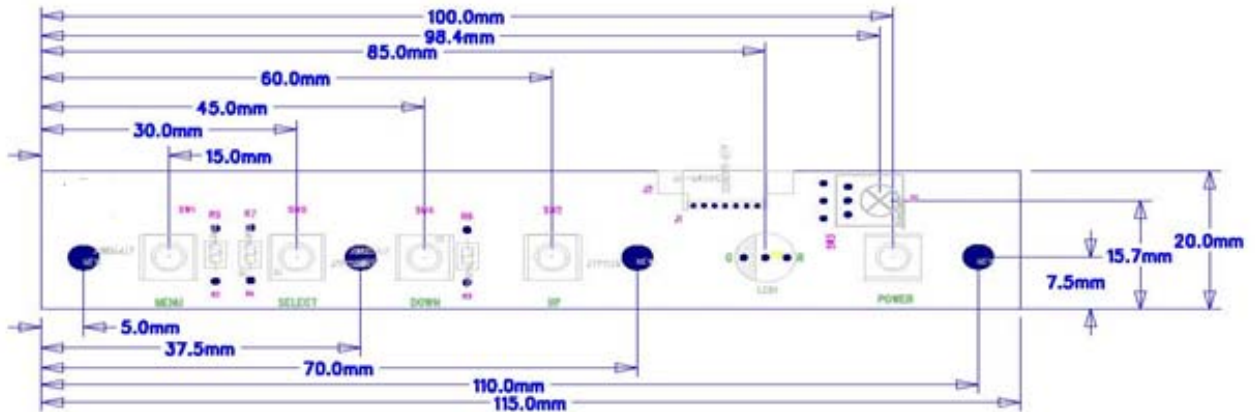
| Pin No | Symbol | Remark               |
|--------|--------|----------------------|
| 1      | RTN1   | Feedback1 (Return 1) |
| 2      | RTN2   | Feedback2 (Return 2) |
| 5      | RTN3   | Feedback3 (Return 3) |
| 6      | RTN4   | Feedback4 (Return 4) |
| 3,4    | VOUT   | System Output        |

## 6. Board Dimensions

### 6.1 AD Board (INB2000) Dimension (140mm x 140mm x 15.9mm)



6.2 OSD Board (K002) Dimension (115mm x 20mm x 8.7mm)



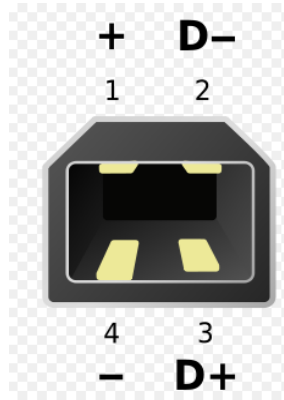
7. P-CAP Touchscreen Specification

7.1 Touchscreen Dimension (757.12mm x 450.6mm x 3.3mm)

7.2. USB Connector (USB 2.0, Type “B”)

| Number | Signal Name |
|--------|-------------|
| 1      | +5V         |
| 2      | D-          |
| 3      | D+          |
| 4      | GND         |

7.3 USB Interface Port



8. Packing Information

| Item           | Q'ty | Dimension (W x H x D)       | Weight(Kg) | Remark |
|----------------|------|-----------------------------|------------|--------|
| Open Frame     | 1Pcs | 757.12mm x 450.6mm x 55.0mm | TBD        |        |
| Box Packing    |      |                             | TBD        |        |
| Pallet Size    |      |                             | TBD        |        |
| Pallet Packing |      |                             | TBD        |        |

9. Mechanical structure