# VW55CD-OM SERIES USER'S MANUAL

## 3.5MM BEZEL / 55-INCH VIDEO WALL MONITOR

# Important Information

| ⚡ | **WARNING** | ⚠ |
|---|---|---|

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS THE PRONGS CAN BE FULLY INSERTED.

REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH VOLTAGE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

| ⚡ | **CAUTION** | ⚠ |
|---|---|---|

TO REDUCE THE RISK OF ELECTRIC SHOCK, MAKE SURE POWER CORD IS UNPLUGGED FROM WALL SOCKET. TO FULLY DISENGAGE THE POWER TO THE UNIT, PLEASE DISCONNECT THE POWER CORD FROM THE AC OUTLET. DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡ This symbol warns user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.

⚠ This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

**CAUTION:** Please use the power cord provided with this display in accordance with the table below. If a power cord is not supplied with this equipment, please contact GVISION. For all other cases, please use the power cord with the plug style that matches the power socket where the monitor is located. The compatible power cord corresponds to the AC voltage of the power outlet and has been approved by, and complies with, the safety standards in the country of purchase.

*When operating this monitor with its AC 125-240V power supply, use a power supply cord that matches the power supply voltage of the AC power outlet being used.*

# Care and Cleaning

- Always unplug your monitor from the wall outlet before cleaning. Clean the LCD monitor surface with a lint-free, non-abrasive cloth. Avoid using any liquid, aerosol or glass cleaners.

- Slots and openings on the back or top of the cabinet are for ventilation. They must not be blocked or covered. Your monitor should never be placed near or over a radiator or heat source, or in a built-in installation unless proper ventilation is provided.

- Never push objects or spill liquid of any kind into this product.

# Safety Precautions / Maintenance

- Do not use this apparatus near water.
- Clean only with dry cloth.

- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

- Only use attachments/accessories specified by the manufacturer.

- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the monitor combination to avoid injury from tip-over.

- Unplug the monitor during lightning storms or when unused for long periods of time.

- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the monitor has been exposed to rain or moisture, does not operate normally, or has been dropped.

- Do not press strongly upon the panel with a hand or a sharp object such as a nail, pencil, or pen, or make a scratch on it.

- Do not stick metal objects or any other conductive material into the power cord. Do not touch the end of the power cord while it is plugged in.

- Keep the packing anti-moisture material or vinyl packing out of the reach of children. Anti-moisture material is harmful if swallowed. If swallowed, induce vomiting and go to the nearest hospital. Additionally, vinyl packing can cause suffocation. Keep it out of the reach of children.

- Concerning the Power Cord (Can differ by country): Check the specification page of this owner's manual to be certain concerning current requirements. Do not connect too many devices to the same AC power outlet as this could result in fire or electric shock. Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, or damaged or cracked wire insulation are dangerous. Any of these conditions could result in electric shock or fire. Periodically examine the cord of your device, and if its appearance indicates damage or deterioration, unplug it, discontinue use of the device, and have the cord replaced with an exact replacement part by an authorized servicer. Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door, or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the device. Do not move the monitor with the power cord plugged in. Do not use a damaged or loose power cord. Be sure do grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the monitor.

- To reduce the risk of fire or electrical shock, do not expose this product to rain, moisture or other liquids. Do not touch the screen with wet hands. Do not install this product near flammable objects such as gasoline or candles, or expose the TV to direct air conditioning.

- Do not use high voltage electrical equipment near the TV (e.g., a bug zapper). This may result in product malfunction.

- Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc. on or over the apparatus (e.g., on shelves above the unit).

- Do not attempt to modify this product in any way without written authorization from GVISION. Unauthorized modification could void the user's authority to operate this product.

- **Moving**: Make sure the product is turned off, unplugged, and all cables have been removed. Do not press or put stress on the front panel of the monitor screen.

- If you smell smoke or other odors coming from the monitor screen, unplug the power cord and contact an authorized service center.

- If water or another substance enters the product (like an AC adapter, power cord, or display unit), disconnect the power cord and contact the service center immediately. Otherwise, this may result in fire or electric shock.
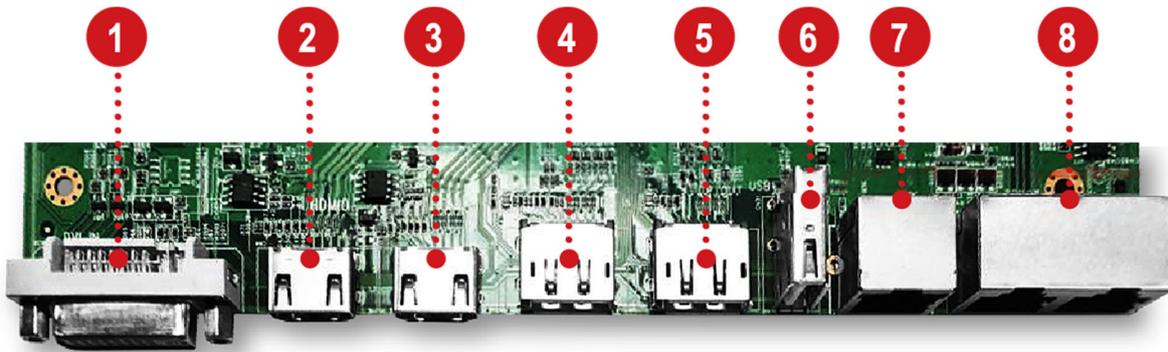
# Table of Contents

# 1 Controllers & Settings

GVision's 3.5mm Ultra Narrow Bezel Video Wall monitors designed for 24/7 365 mission-critical operations. GVision provides a complete Video Wall Solutions.

## 1.1 Monitor Interface



| INTERFACES INSTRUCTION | | |
|---|---|---|
| 1 | DVI IN | DVI Input Source |
| 2 | HDMI IN 1 | HDMI 1 Input Source |
| 3 | HDMI IN 2 | HDMI 2 Input Source |
| 4 | DP IN | DisplayPort (DP) Input Source |
| 5 | DP OUT | DisplayPort (DP) Output Source |
| 6 | USB IN | Software Update |
| 7 | RS232 IN | Control the Screen via RS232 Protocol Input |
| 8 | RS232 OUT | Control the Screen via RS232 Protocol Output |

## 1.2 Remote Control
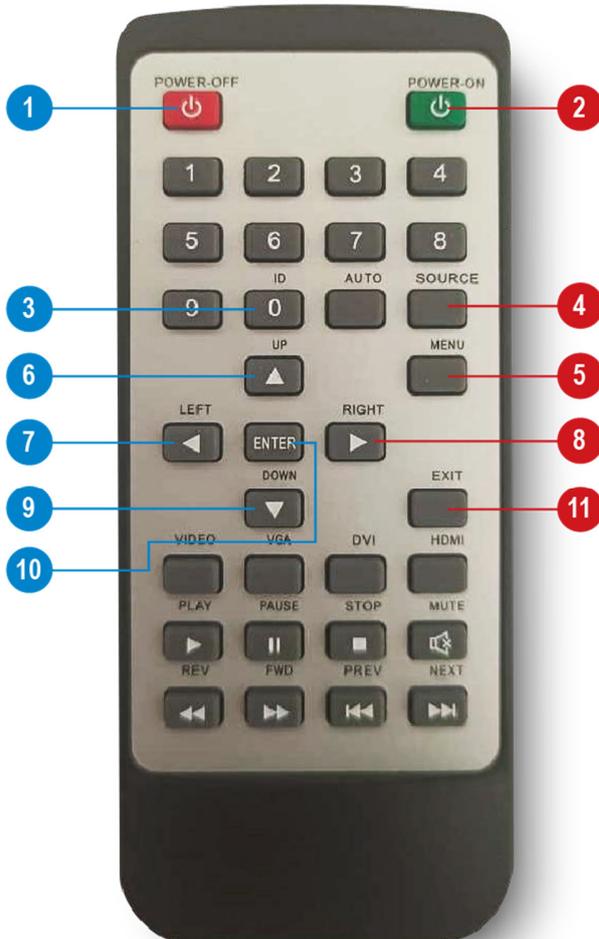


| FUNCTIONS | |
|---|---|
| 1 | Power Off |
| 2 | Power On |
| 3 | ID: Software address setting |
| 4 | Source: Change media source |
| 5 | Menu: Press to access the menu |
| 6 | Up: Press to move up |
| 7 | Left:  Press to move left |
| 8 | Right:  Press to move right |
| 9 | Down:  Press to move down |
| 10 | Enter: Press to enter |
| 11 | Exit: Press to exit the menu |

## 1.2.1 IR Receiver

Plug the IR receiver in the RS232 (RJ45 Shape) port.



IR IN
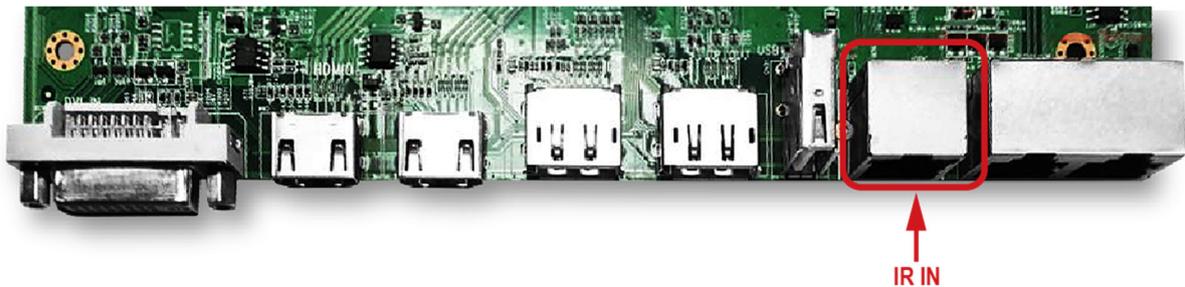
## 1.2.2 Software Address Setting
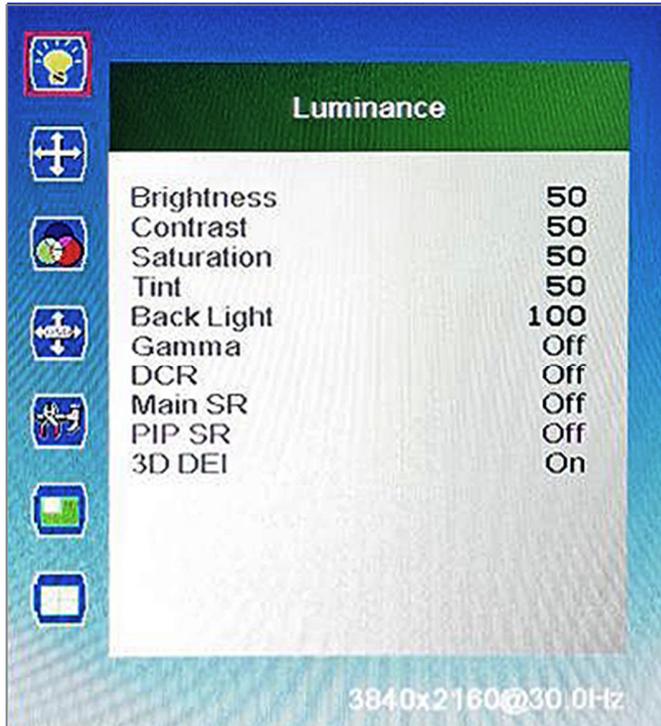


Figure 1.1

Press the MENU button from the remote controller to display following image *(Figure 1.1).*
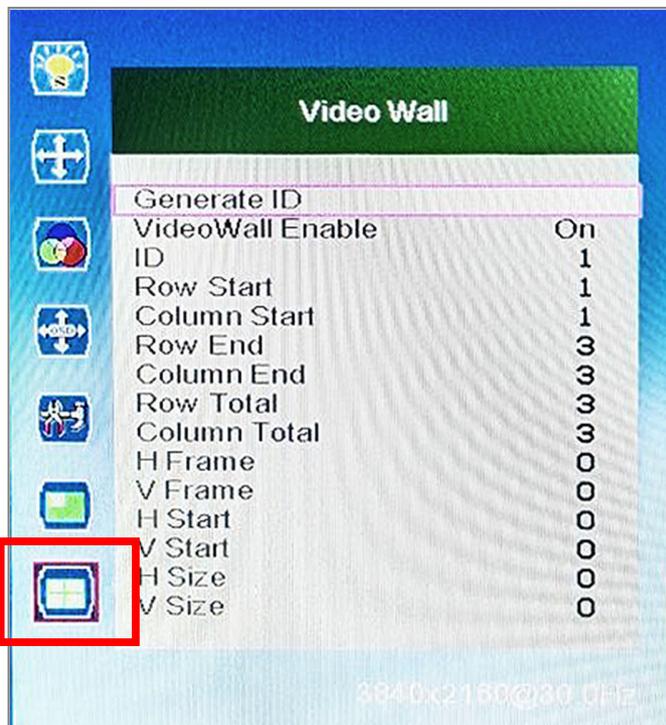


Figure 1.2

Press **UP/DOWN** to move and select **VIDEO WALL** icon, press **ENTER**. *(Figure 1.2)*

Press **ENTER** again to set the **ID**.
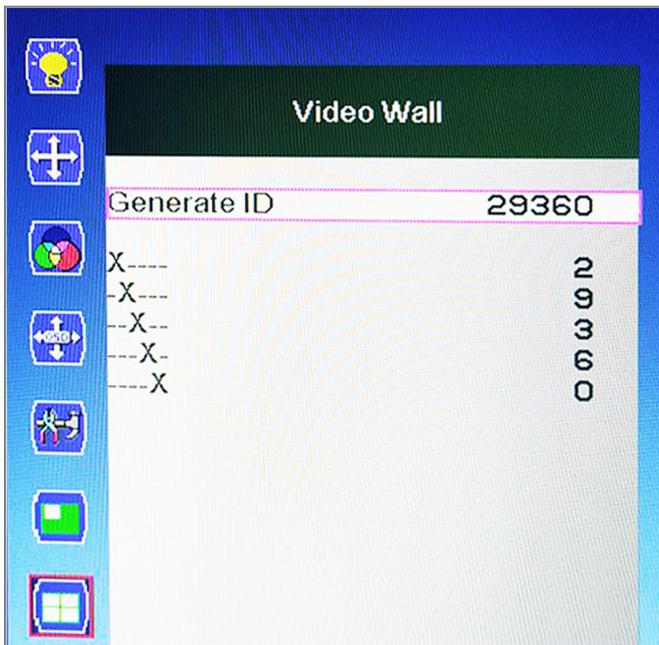
Figure 1.3

The **ID** is randomly generated, if any duplicated **ID** found on screens, press the **ENTER** again to re-generate **ID** until all IDs are independent. *(Figure 1.3)*

Fill in the numbers according to the generated **ID**, then press **EXIT** to return.
.
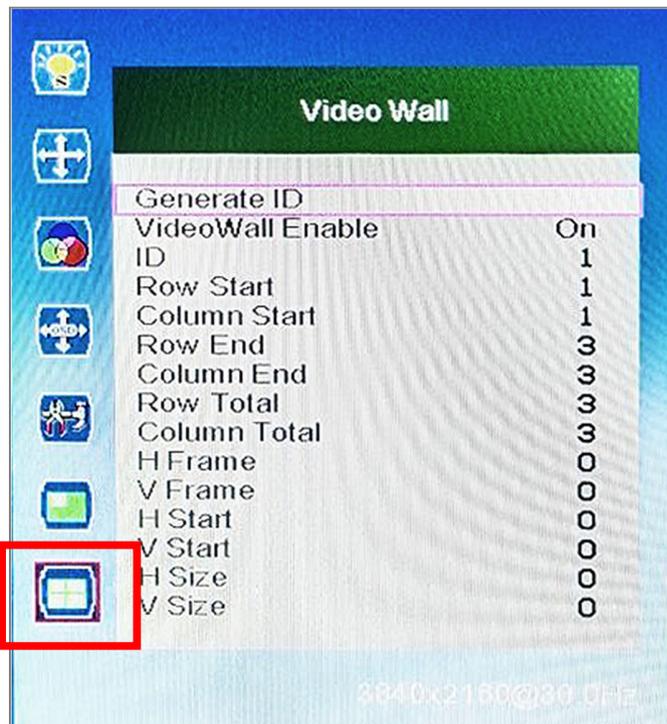


Figure 1.4

Press **UP/DOWN** to navigate and set parameters item by item. (The following takes 3X3 video wall as an example). *(Figure 1.4)*

➢ The **[Row Start]** item and **[Column Start]** item represent the software address of the top-left screen in the wall matrix.

➢ The **[Row End]** item and **[Column End]** item represent the software address of the bottom-right screen in the wall matrix.

Example of 3x3 Video Wall Configuration.

| Row Start 1 | Row End 1 |
| --- | --- |
| Column Start 3 | Column End 3 |
| Row Total 3 | Column Total 3 |

## ROW TOTAL = 3

| COLUMN 1 ROW 1 ID 1 | COLUMN 2 ROW 1 ID 2 | COLUMN 3 ROW 1 ID 4 |
| --- | --- | --- |
| COLUMN 1 ROW 2 ID 4 | COLUMN 2 ROW 2 ID 5 | COLUMN 3 ROW 2 ID 6 |
| COLUMN 1 ROW 3 ID 7 | COLUMN 2 ROW 3 ID 8 | COLUMN 3 ROW 3 ID 9 |

**COLUMN TOTAL = 3**
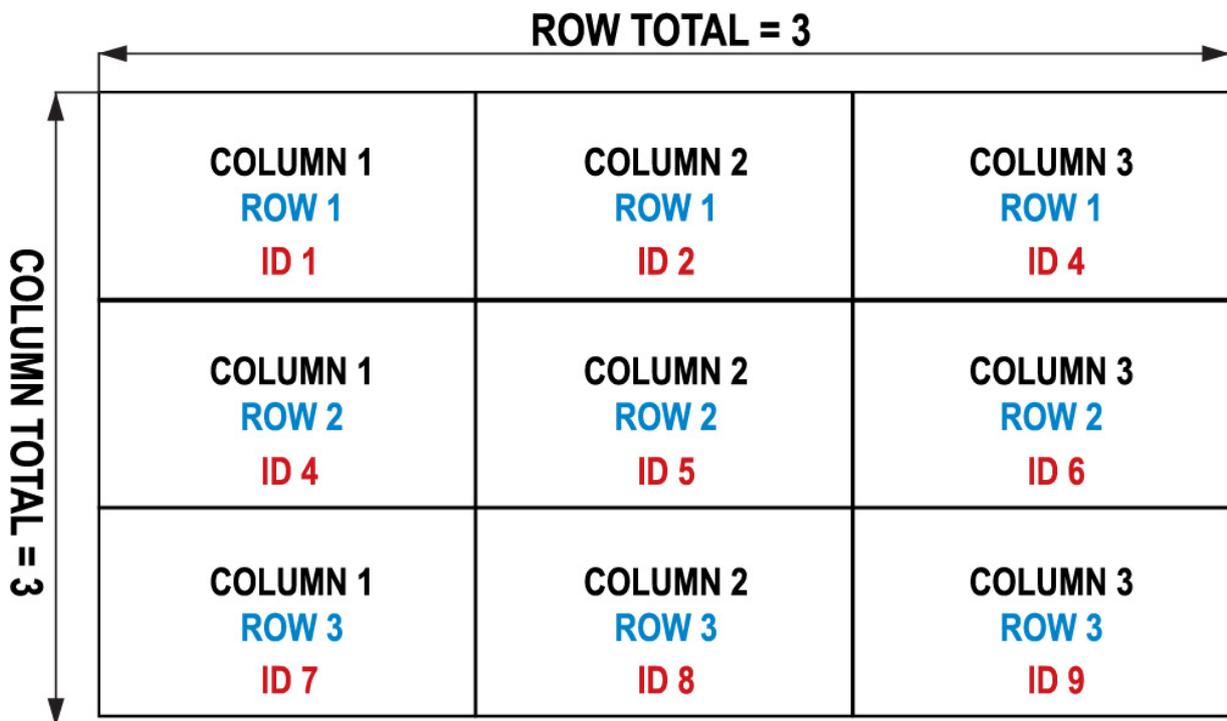
Move to **[Video Wall Enable]**, select **[On**] to start splicing, select **[Off]** to display independently.

# 2 Color Balance Adjustment

Enter the factory menu through MENU+1234 on the remote control to check the version information and the production date of the software.
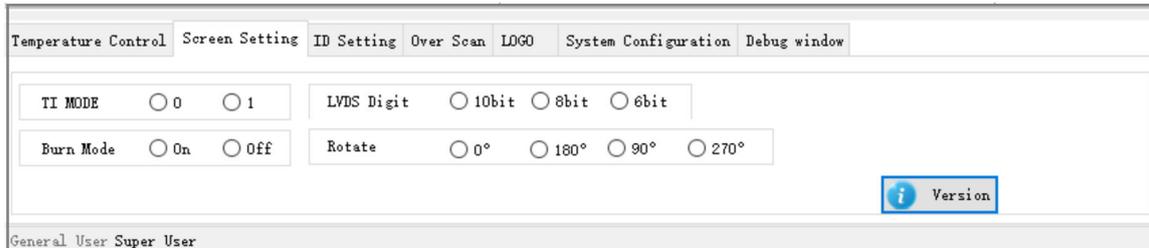


*Note: Try not to use different software which may lead to problems due to customized effects.*

## 2.1 Preparation
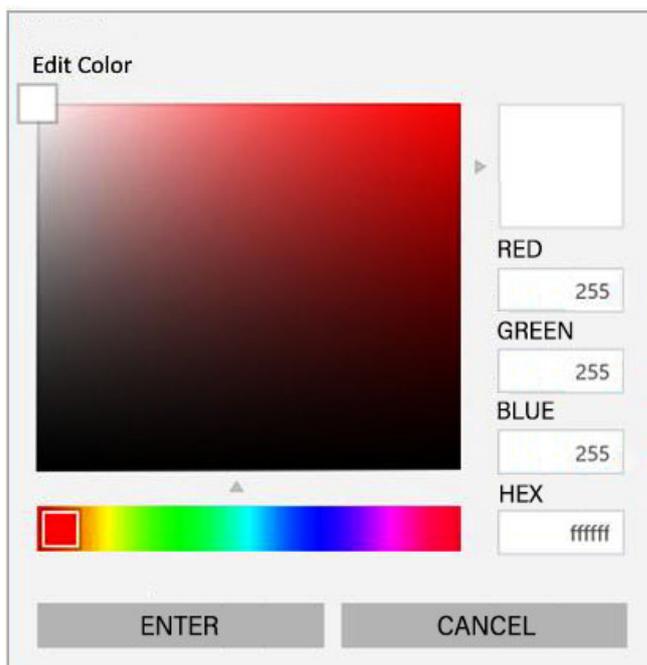


> Make a pure white and a pure black picture (red, green and blue are both 255, the following picture is the setting method of the drawing tool in the WIN10 system, other systems are similar), If it is a scene with a lot of static files, you can create pictures similar to pure red, pure green and pure blue, or use a small tool to generate it yourself, in following test will be used.

*It is recommended to use the host computer for debugging work, which is convenient and quick to operate.*
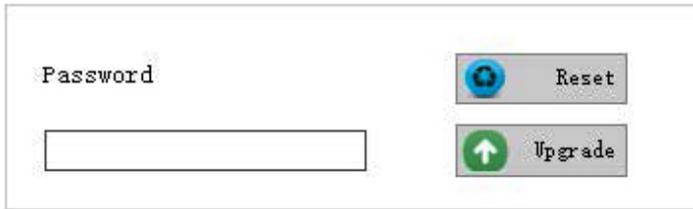
> Use the host computer control: after Unicom host computer, first perform the overall reset action, the password is "**cjfw**", Ensure that the software is in the default factory state.

*NOTE: To avoid the reset action during the customer is in use, do not send this password to the customer.*

> After the screen is reset, set the ID address of each screen through the host computer or remote control.

> *NOTE: Press the ID key on the remote control to call up the setting interface, and the host computer needs to enter the super user interface; Part of the parameters and parameter positions needed to adjust the screen:*



> Some parameters and parameter positions needed to adjust the screen.

**PC software:**
Open the image adjustment interface, and the adjustment is mainly based on "brightness", "red gain", "green gain", "blue gain" and "saturation". When adjusting the screen, you need to select the corresponding screen in the main frame. Then adjust the parameters in "Image Adjustment".

*Please do not do any operation on the backlight brightness.*
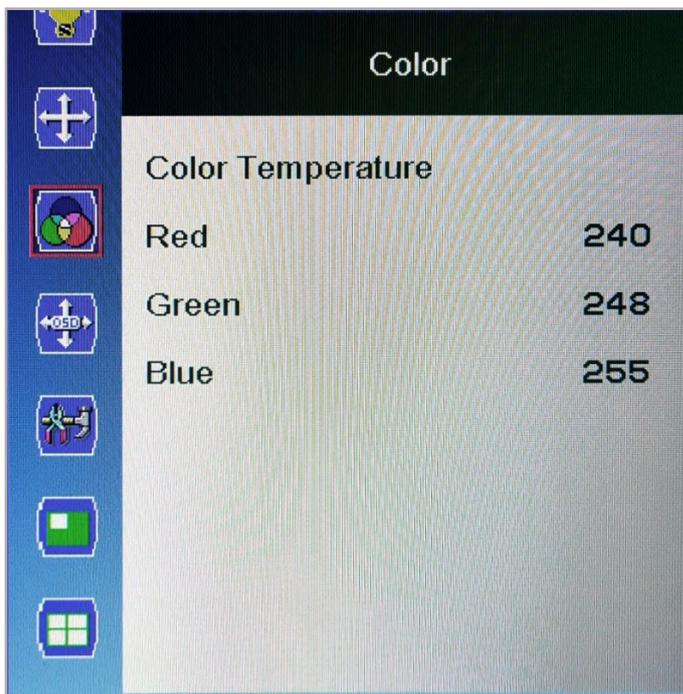
> ➢ Use the remote control to press the MENU key button to access the "Color" menu.
>
> The parameters are mainly red gain, green gain and blue gain in white balance.

## 2.2 Adjustment
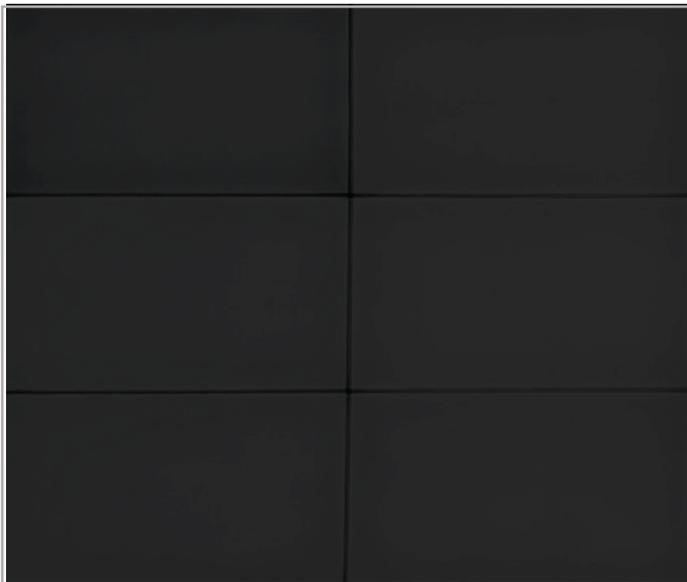


Figure 2.1

> ➢ Play the black picture in full screen, as shown in figure 2.1, and observe whether the picture has whitening or uneven the brightness.
>
> • **Screen whitening**: Reduce the brightness value of a single screen.
>
> • **The black field of the screen is uneven**: This situation is caused by the unevenness of the light guide plate. This state is not avoided. It is necessary to increase the brightness value to make the screen white as much as possible, Adjust the value within 10 unit values.

Figure 2.2

> After the black picture is adjusted, the created pure white picture will be played in full screen at this time.

> Stand in front of the screen to observe the splicing and select one of the most gray and dark screens, as shown in the figure 2.2.

> Taking the darker screen as the benchmark, adjust the brightness and grayscale of other screens to a similar level to the dark screen.

> **Specific method**: Reduce the brightness of the lower screen of the white screen by reducing the red, green and blue gains in the color temperature of a single screen. For example, the above picture should be based on the first screen in the upper left corner, and the surrounding screens should reduce the red, green and blue gains one by one to achieve dark degree of consistency.

*Note: Try not to operate by reducing the brightness. First, the brightness has changed after adjusting the black point, and second, the brightness change will also cause a large difference in color temperature.*

> The solution to the color deviation between the screens under the white screen:
>   • Picture is reddish: reduce the "red gain" or increase ("green gain" and "blue gain")
>   • Picture is greenish: Decrease "Green Gain" or increase ("Red Gain" and "Blue Gain")
>   • Picture is bluish: Decrease "Blue Gain" or increase ("Red Gain" and "Green Gain")
>   • Picture is yellowish: increase "Blue Gain" or decrease ("Red Gain" and "Green Gain")
>   • Picture is purple: increase the "green gain" or decrease ("red gain" and "blue gain")
>   • Picture is too blue: increase the "red gain" or decrease ("blue gain" and "green gain")

*Note: Changing the "Blue Gain" has a great impact on the brightness of the picture, try to minimize the changes to the "Blue Gain"*

Figure 2.3

> ➢ In response to the problem of inconsistent colors in the solid color screen raised by the customer, first confirm that the white screen has been debugged, and then refer to the following method, the effect is shown in the figure 2.3

- The difference in color shades is slight: it can be improved by increasing the "saturation" of the screen with slightly lighter colors.

- Large difference in color shades: it can be improved by reducing the "saturation" of the screen with higher color density.

- The problem of color cast, for example, some screens are watery red or purple under the red screen, and some screens are green or blue under the yellow screen. At this time, please make sure that the colors of pure red, pure green and pure blue are not too different; if the color cast problem cannot be reduced by adjustment, please try to reduce the "saturation" to improve such problems.

*Note: Reducing the saturation will result in a lighter color, so the one with the closest visual effect is the best.*

# 3 Driver Board

M292W is a TFT-LCD driver board specially designed for displays. It adopts a highly integrated LVDS LCD screen driver chip, which enables it to have a smaller PCB size, support abundant signal source input, and high-quality 1080P image output.

## 3.1 Features

- ➢ Support dual-channel 10bit LVDS output, output resolution 1920*1080@60Hz.
- ➢ Support quad-way signal source picture-splice-picture function, support dual-way signal source picture-in-picture function.
- ➢ Support 90 degree, 180 degree, and 270 degree rotation of the screen, and the highest resolution of the rotation function supports 1920*1080@60hz.
- ➢ Support 1080P signal three-line synchronous display.
- ➢ Support input signal:
  - *1 X DVI;*
  - *3 X HDMI-in (the highest resolution supports 4096x2160@30Hz)*
  - *1 X DP-in (the highest resolution supports 3840*2160@60Hz)*
  - *1 X USB*
  - *1 X RS232-in (RJ45 Shape)*
- ➢ Output signal:
  - *1 X DP-out*
  - *2 X RS232-out (RJ45 Shape)*
- ➢ Support DP daisy chain (the highest resolution supports 3840*2160@60Hz).
- ➢ Using the latest LVDS driver chip, the peripheral circuit is simpler and the power consumption is lower.
- ➢ With an automatic temperature control system, work is stable.
- ➢ With USB upgrade function, easy maintenance and assembly.
- ➢ Efficient 3D comb filter image processing engine, the output image is clearer and more realistic.
- ➢ Complete hardware design without OS.
- ➢ Multi-CANBUS parallel processing, powerful processing capability.
- ➢ Work 24/7.
- ➢ Support remote control to operate all splicing functions.
- ➢ No risk of virus infection, good safety.

## 3.2 Driver-Board Overview
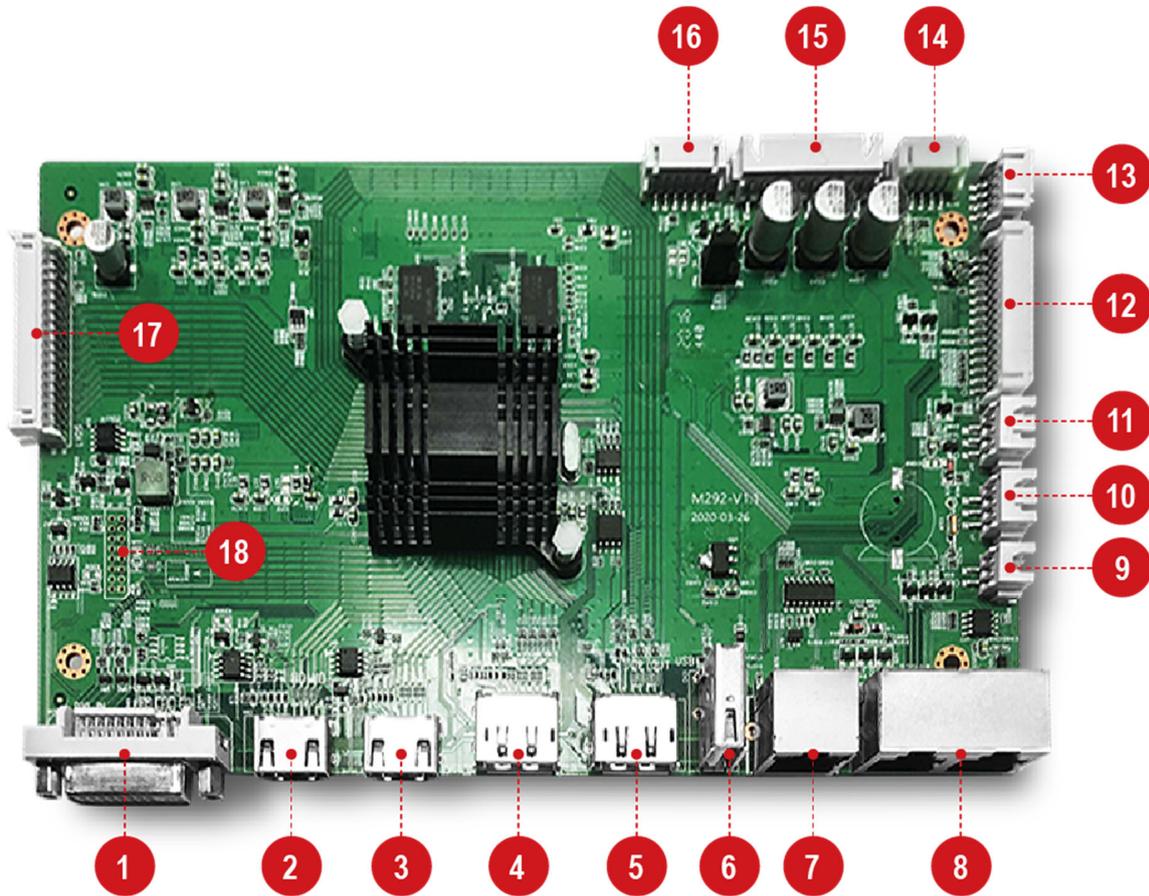


| I/O Port Overview | | | |
|---|---|---|---|
| 1 (CN38) | DVI Input | 10 (J11) | Fan Connector 1 |
| 2 (CN4) | HDMI Input 1 | 11 (J10) | Fan Connector 2 |
| 3 (CN6) | HDMI Input 2 | 12 (CN34) | OSD Connector |
| 4 (CN2) | DP Input | 13 (J3) | UART Connector |
| 5 (CN28) | DP Output | 14 (CN25) | I2C & ADC Connector |
| 6 (CN31) | USB (Upgrade) | 15 (CN33) | Power Input |
| 7 (J7) | RS232 Input | 16 (CN36) | Backlight Connector |
| 8 (CN32) | 2 X RS232 Output | 17 (CN39) | Screen Cable Connector |
| 9 (J12) | External RTC | 18 (CN37) | Internal HDMI Input |

## 3.3 Main-Board Description

### 3.3.1 PCB Dimension

➢ **PCB Dimension**: 1.6mm (H) x 201mm (L) x 122mm (W)

### 3.3.2 Mechanical Dimension

## 3.4 I/O Description
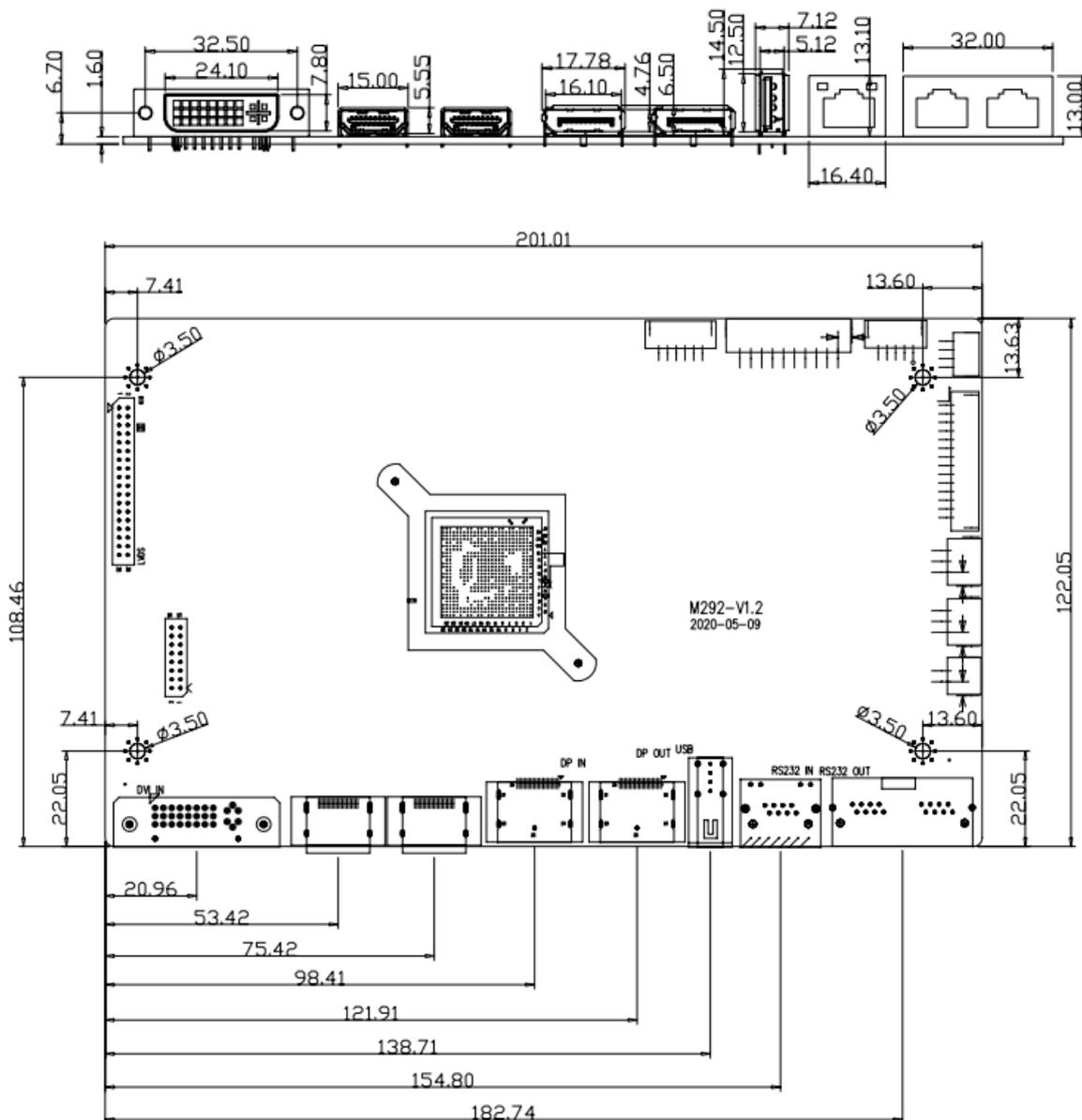
| NO | SYMBOL | DESCRIPTION |
|---|---|---|
| J12 (2PIN/2.54mm): External RTC | | |
| 1 | NTC | Temperature Sensor Signal Input |
| 2 | GND | Ground |

| NO | SYMBOL | DESCRIPTION |
|---|---|---|
| J10, J11 (3PIN/2.54mm): Fan Connector | | |
| 1 | FAN | 12V Fan Power |
| 2 | NC | NC |
| 3 | GND | Ground |

| NO | SYMBOL | DESCRIPTION |
|---|---|---|
| CN34 (14Pin/2.0mm): OSD Connector | | |
| 1 | POWER | Power On/Off |
| 2 | DOWN | Down |
| 3 | UP | Up |
| 4 | ENTER | Confirm |
| 5 | MENU | Menu |
| 6 | SOURCE | Signal Source Switch |
| 7 | AUTO | Automatic |
| 8 | GND | Ground |
| 9 | LED-G | Green LED Light |
| 10 | LED-R | Red LED Light |
| 11 | K8 | K8 Key |
| 12 | GND | Ground |
| 13 | IR-IN | Infrared Reception |
| 14 | 5V | 5VDC Power |

| NO | SYMBOL | DESCRIPTION |
|---|---|---|
| J3 (4Pin/2.0mm): UART Connector | | |
| 1 | 3.3V | 3.3V Stand-by Power |
| 2 | GND | Ground |
| 3 | RX | Reception |
| 4 | TX | Transmission |

| CN25 (5Pin/2.0mm):I2C & ADC Connector | | |
|---|---|---|
| NO | SYMBOL | DESCRIPTION |
| 1 | ADC | Analog-Digital Conversion |
| 2 | GND | Ground |
| 3 | SDA | Data |
| 4 | SCL | Clock |
| 5 | 3.3V | 3.3V Stand-by Power |

| CN33 (10PIN /2.54mm): Power Input | | |
|---|---|---|
| NO | SYMBOL | DESCRIPTION |
| 1 | STB | Power Control Pin |
| 2 | GND | Ground |
| 3 | GND | Ground |
| 4 | 5VS | 5V Stand-by Power |
| 5 | 5V | 5V Controlled DC Power Supply |
| 6 | 5V | 5V Controlled DC Power Supply |
| 7 | GND | Ground |
| 8 | GND | Ground |
| 9 | 12V | 12V Controlled DC Power Supply |
| 10 | 12V | 12V Controlled DC Power Supply |

| CN36 (6Pin/2.0mm): Backlight Connector | | |
|---|---|---|
| NO | SYMBOL | DESCRIPTION |
| 1 | GND | Ground |
| 2 | GND | Ground |
| 3 | ADJ | Brightness Adjustment |
| 4 | BL | Backlight On/Off Pin |
| 5 | 12V | 12V DC Power Output |
| 6 | 12V | 12V DC Power Output |

| NO | SYMBOL | DESCRIPTION |
|---|---|---|
| **CN39 (2X18_2.0mm): Screen Cable Connector** | |
| 1 | VLCD | Power Out |
| 2 | VLCD | Power Out |
| 3 | VLCD | Power Out |
| 4 | SEL | Data Format Selection |
| 5 | GND | Ground |
| 6 | GND | Ground |
| 7 | GND | Ground |
| 8 | GND | Ground |
| 9 | 4- | Data Channel 4- |
| 10 | 4+ | Data Channel 4+ |
| 11 | 3- | Data Channel 3- |
| 12 | 3+ | Data Channel 3+ |
| 13 | C- | Clock Channel C- |
| 14 | C+ | Clock Channel C+ |
| 15 | 2- | Data Channel 2- |
| 16 | 2+ | Data Channel 2+ |
| 17 | 1- | Data Channel 1- |
| 18 | 1+ | Data Channel 1+ |
| 19 | 0- | Data Channel 0- |
| 20 | 0+ | Data Channel 0+ |
| 21 | GND | Ground |
| 22 | GND | Ground |
| 23 | 04- | Data Channel 04- |
| 24 | 04+ | Data Channel 04+ |
| 25 | 03- | Data Channel 03- |
| 26 | 03+ | Data Channel 03+ |
| 27 | 0C- | Clock Channel 0C- |
| 28 | 0C+ | Clock Channel 0C+ |
| 29 | 02- | Data Channel 02- |
| 30 | 02+ | Data Channel 02+ |
| 31 | 01- | Data Channel 01- |
| 32 | 01+ | Data Channel 01+ |
| 33 | 00- | Data Channel 00- |
| 34 | 00+ | Data Channel 00+ |
| 35 | GND | Ground |
| 36 | GND | Ground |

## 3.5 Performing Index

- Working Temperature： -10°C ~ 55°C

- Working Humidity： ≤ 80%

- Stand-by Power Consumption： 0.4W
- Support Resolution： 1920 x 1080

## 3.6 Software Upgrade

M292W can only use USB to upgrade software.

➢ Save the burn-in software to a USB device as two separate files and rename it as update.bin and config.bi.

➢ Insert USB device:

- Use the program upgrade function in host computer for USB upgrade
- Upgrade by selecting the firmware update (FW Update A) option in the menu

# 4 Power Board

| Table.1 Input Electrical Characteristics | |
|---|---|
| Input Voltage Range | 90Vac ~ 264Vac |
| Normal Voltage Range | 100Vac ~ 240Vac |
| Frequency Range | 50Hz/60Hz±5% |
| Max. Input AC Current | 4Amax at full load condition |
| Inrush Current (Cold Start) | 50Atyp. peak/ 120Vac ; 100Atyp. peak/ 220Vac |
| Efficiency (Full Load) | 85%min at 100Vac, 88%Vac at 220Vac |
| Harmonic Current | Meet GB17625.1/ IEC61000-3-2 Class-D |
| Leakage Load | Less than 0.5mA/ 230Vac input |
| Standby Power Loss | ≤ 0.5W/ 240Vac input, 5Vsboutput current ≤ 20mA |
| Input Fuse | T6.3AH/ 250Vac |

- Output Electrical Characteristic

| Table.2 Output Voltage & Current Regulation | | | | |
|---|---|---|---|---|
| Output Voltage | Regulation | Min. Current | Load Current Range | Peak Current/ Power |
| +V1 (+24V) | +V1±10% | 0.2A | 0.2A ~ 8A | 10A |
| +V2 (+12V) | +V2±10% | 0.2A | 0.2A ~ 3A | 5A |
| +5.0V | +5.0V±5% | 0.01A | 0.01A ~ 3.5A | 4.5A |
| +5.0V (SB) | +5.0V±5% | 0.01A | 0.01A ~ 0.5A | 1A |

*Note: The testing current shall be performed under other DC output load rating and the peak current pulse width within 100ms conditions.*

| Table.3 DC Output Ripple & Noise | | |
|---|---|---|
| Output Voltage | Ripple & Noise (Max.) | |
| +V1 (+24V) | 240mVp-p@25 | 450mVp-p@-10 |
| +V2 (+12V) | 120mVp-p@25 | 200mVp-p@-10 |
| +5.0V | 60mVp-p@25 | 150mVp-p@-10 |
| +5.0V (SB) | 60mVp-p@25 | 200mVp-p@-10 |

*Note:*

- Ripple & Noise bandwidth is set to 20MHz during test.
- Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for Ripple & Noise measurements.
- Ripple & Noise test condition: Input voltage range is 100Vac ~ 200Vac at rated current load.

## Table.4 Output Transient Response

| Voltage Tolerance Limit | | Slew Rate | Load Change |
|---|---|---|---|
| +5VSB/±10% | +5V±10% | 0.2A/uS | Min. to 50% load and 50% to Max. load |
| +12V/±10%, | +24V/±10% | | |
| All output±10% | | 0.2A/uS | Min. load to Max. load |

*Note: Load change repetition rate 50Hz ~ 100Hz.*

## Table.5 Hold-Up Time

| Output Voltage | 120Vac Input | 220Vac Input |
|---|---|---|
| +V1 (+24V) | 5mS | 10mS |
| +V2 (+12V) | 5mS | 10mS |
| +5.0V | 5mS | 10mS |
| +5.0V (SB) | 5mS | 10mS |

*Note: All DC output at rated load.*

## Table.6 DC Output Overshoot During Turn-On & Turn-Off

| Output Channel | Output (V) | Overshoot Voltage (V) | |
|---|---|---|---|
| | | Turn-On | Turn-Off |
| +V1 (+24V) | +24V | 10% | 10% |
| +V2 (+12V) | +12V | 10% | 10% |
| +5.0V | +5.0V | 10% | 10% |
| +5.0V (SB) | +5.0V | 10% | 10% |

*Note: All DC output current from Min. to Max.*

## Table.7 DC Output Voltage Rise Time

| Output Voltage | 120Vac Input & Full Load | 220Vac Input & Full Load |
|---|---|---|
| +V1 (+24V) | ≤ 100mS | ≤ 100mS |
| +V2 (+12V) | ≤ 100mS | ≤ 100mS |
| +5.0V | ≤ 100mS | ≤ 100mS |
| +5.0V (SB) | ≤ 100mS | ≤ 100mS |

*Note: The rise time measured from when the output voltage rises from 10% to 90% of specified output voltage Vout observed on the channel waveform.*

- Protection

| Table.8 DC Output Over-Current Protection | | |
|---|---|---|
| Over Voltage | Over Current | Comments |
| +V1 (+24V) | ≥ 10Atyp. | Hiccup (Reboot) |
| +V2 (+12V) | ≥ 5Atyp. | Hiccup (Reboot) |
| +5.0V | ≥ 4.5Atyp. | Hiccup (Reboot) |
| +5.0V (SB) | ≥ 1Atyp. | Hiccup (Reboot) |

*Note: The over current protection should be tested at other load rating.*

| Table.9 DC Output Short Circuit Protection | |
|---|---|
| Output Voltage | Comments |
| +V1 (+24V) | Shutdown |
| +V2 (+12V) | Shutdown |
| +5.0V | Hiccup (Reboot) |
| +5.0V (SB) | Hiccup (Reboot) |

*Note: The short circuit protection should be tested at other load rating.*

| Table.10 DC Output Over Voltage Protection | | |
|---|---|---|
| Output Voltage | Typ. Over Voltage | Comments |
| +V1 (+24V) | 30V | Power supply latch into shutdown state |
| +V2 (+12V) | 16V | Power supply latch into shutdown state |

*Note: Power supply from output voltage.*

| Table.11 Remote On/Off Control |
|---|

> The power supply DC outputs (without +5.0Vsb) shall be enabled with an active high TTL (≥ 2.5V&2.0mA)-compatible signal (Ps-on). The +5Vsb is on whenever the AC power is present.
> When Ps-on is pulled to TTL-high, the DC outputs should be enabled.
> When Ps-on is pulled to TTL-low or open circuit, the DC outputs should be disabled.

| Ps-on Signal | Comments | Outputs |
|---|---|---|
| Ps-on-high | ≥ 2.5V&2.0mA (Source) | Output |
| Ps-on-low | ≤ 0.5V | X |
| Ps-on-open | --- | X |

## 4.1 Isolation

| Table.12 Impedance | |
|---|---|
| Input to Output | DC500V 10MΩ min (at room temperature) |
| Input to FG | DC500V 10MΩ min (at room temperature) |
| Output to FG | Non-Isolated |

*Note: AC ground and output negative need to be disconnected.*

| Table.13 Voltage | |
|---|---|
| Input to Output | 3000Vac 50Hz 1min ≤ 10mA |
| Input to FG | 1500Vac 50Hz 1min ≤ 10mA |
| Output to FG | Non-Isolated |

## 4.2 Safety

The power supply shall comply with the following criterion:

- IEC/EN60065
- GB8898
- UL60065

## 4.3 EMC

| EMI | | | |
|---|---|---|---|
| The power supply shall comply with the following criterion: | | | |
| Conduction Emission: | CISPR13 (55013) | Radiated Emission: | CISPR13 (55013) |
| | EN55013 | | EN55013 |
| | GB13837 | | GB13837 |
| | FCC PART13 | | FCC PART13 |

*Note: The power board should be assembled in product to test for passing above criterion.*

| EMS | | | |
|---|---|---|---|
| The power supply shall comply with the following criterion: | | | |
| ESD: | GB17626.2 | EFT: | GB17626.4 |
| | IEC/EN61000-4-2 | | EC/EN61000-4-4   3KV |
| SURGE: | GB17626.5 | DIP: | GB17626.11 |
| | IEC/EN61000-4-5 1.5KV/3KV | | IEC/EN61000-4-11 |

## 4.4 Environmental Requirement

| Climates: | For typical climates |
|---|---|
| Temperature: | Operating: -10°C ~ 40°C |
| | Storage: -20°C ~ 70°C |
| Humidity: | Operating: 10% ~ 90% relative humidity (non-condensing) |
| | Storage: 5% ~ 95% relative humidity (non-condensing) |
| Altitude: | Operating: Less than 2000m |

| | | |
|---|---|---|
| 汉文 | 仅适用于海拔2000m以下地区安全使用。 | |
| 蒙古文 | 《2000m ᠲᠡᠷ᠎ᠡ ᠭᠠᠵᠠᠷ ᠲᠤ ᠠᠮᠤᠷ ᠲᠦᠪᠰᠢᠨ ᠢᠶᠠᠷ ᠬᠡᠷᠡᠭᠯᠡᠨ᠎ᠡ᠃》 | |
| 藏文 | "རྒྱ་མཚོའི་ངོས་ལས་མ་མཐོ་ཆོད་སྟེ2000མན་གྱི་ས་ཁུལ་ལོ་ར་ཉེན་མེད་བེད་སྤྱོད་བྱས་འཐུས།" | |
| 维文 | دېڭىز يۈزىدىن 2000 مېتر تۆۋەن رايونلاردىلا بىخەتەر ئىشلەتكىلى بولىدۇ | |
| 壮文 | Hai dou gaxgonq, wngdang sien duenh denvasen bae. | |

| Cooling Method: | Ventilation cooling |
|---|---|
| Vibration: | 10 ~ 55Hz, 19.6 m/s2 (2G), 20 minutes each along with X, Y and Z axis. |
| Shock: | 49m/s2 (5G), 11ms, once each X, Y and Z axis. |

## 4.5 Dimension

➢ 260(L) × 130(W) × 26(H)mm

## 4.6 Weight

➢ 500g

## 4.7 Pin Connection

| Table.14 Pin-CN1 connection & function | | |
|---|---|---|
| NO. | Pin Connection | Function |
| 1 | AC-N | AC INPUT NUTURE |
| 2 | NC | NC |
| 3 | AC-L | AC INPUT LINE |

*Note: CN1--VH CONNECTION, TYPE: pitch 3.96mm.*

| Table.15 Pin-CON1 connection & function | | |
|---|---|---|
| NO. | Pin Connection | Function |
| 1, 2 | SGND | +5V +5VSB +12V RETURN |
| 3, 4 | +5V | +5VDC OUTPUT |
| 5 | PS | SMPS ON/OFF CONTROL (ON=HIGH) |
| 6 | +5VSB | STANDBY (+5VDC) OUTPUT |
| 7, 8 | +5V | +5VDC OUTPUT |
| 9, 10, 11 | GND | +5V +5VSB +12V RETURN |
| 12, 13 | +12V | +12VDC OUTPUT |

*Note: CON1--VH CONNECTION, TYPE: pitch 2.5mm.*

| Table.16 Pin-CON2 connection & function | | |
|---|---|---|
| NO. | Pin Connection | Function |
| 6, 7, 8, 9, 10 | SGND | +24VDC RETURN |
| 1, 2, 3, 4, 5 | +24V | +24VDC OUTPUT |

*Note: CON2--XH CONNECTION, TYPE: pitch 2.5mm.*

| Table.17 Pin-CON3 connection & function | | |
|---|---|---|
| NO. | Pin Connection | Function |
| 6, 7, 8, 9, 10 | +24V | +24VDC OUTPUT |
| 1, 2, 3, 4, 5 | SGND | +24VDC RETURN |

*Note: CON3--XH CONNECTION, TYPE: pitch 2.5mm.*

| Table.18 Pin-CON4 connection & function | | |
|---|---|---|
| NO. | Pin Connection | Function |
| 3, 4 | SGND | +24VDC RETURN |
| 1, 2 | +24V | +24VDC OUTPUT |

*Note: CON4--XH CONNECTION, TYPE: pitch 2.5mm.*

- ## Pin Connection Configuration
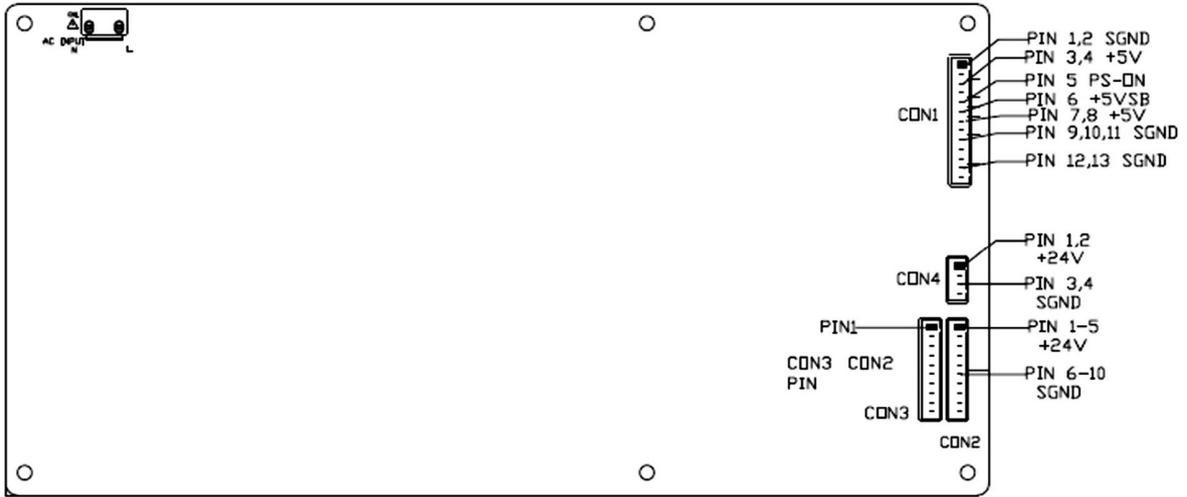


*Note: The image shown here is indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.*
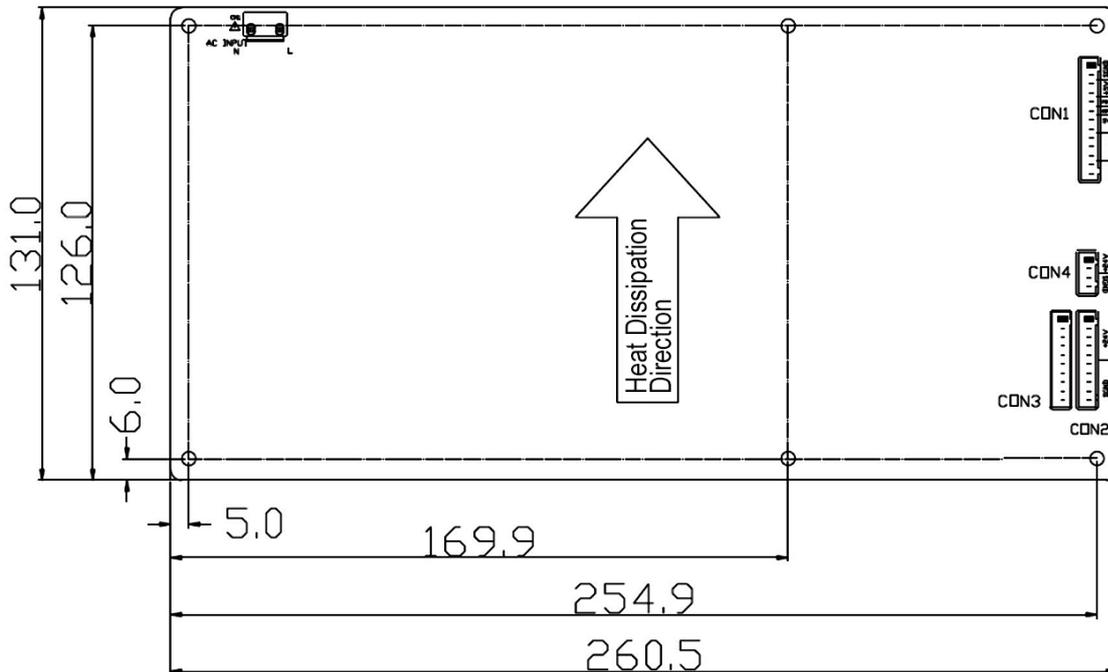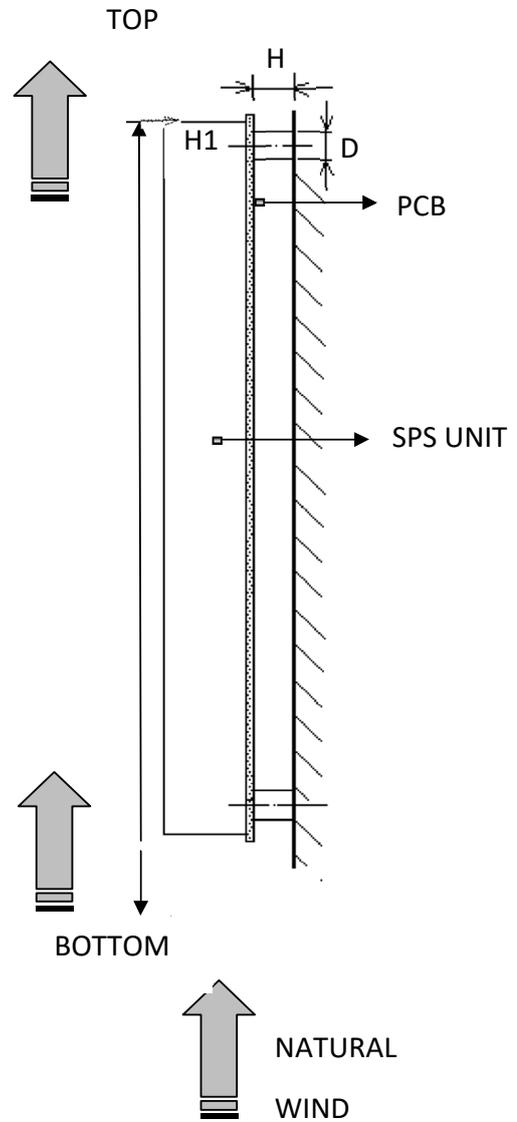
## 4.8 Power Supply Mounting

| Table.19 Mount Method | |
|---|---|
| D | ≤ 5.5mm[1] |
| H | ≥ 4.0mm |
| | ≤ 11mm[2] |
| H1 (Components Height) | ≤ 35mm |

*Note*

- *Mount the unit to the mounting board using M3 screw. The maximum value of the tightening torque is 40N-60N. The insertion depth of the screw should be less 5.5mm.*

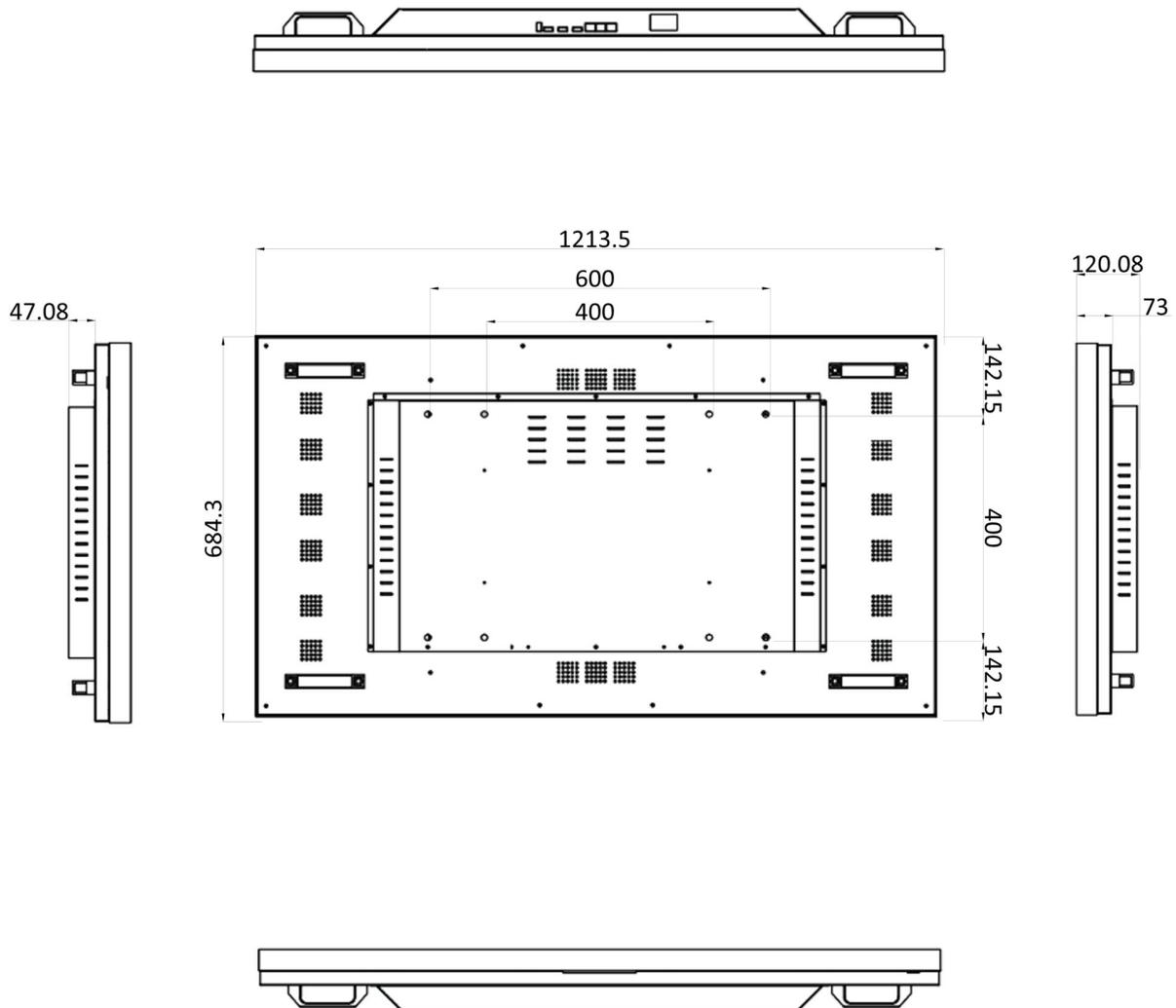- *Add 260(L)×130(W)×0.43(H)mm Mylar under PCB bottom.*

# 5 Specification

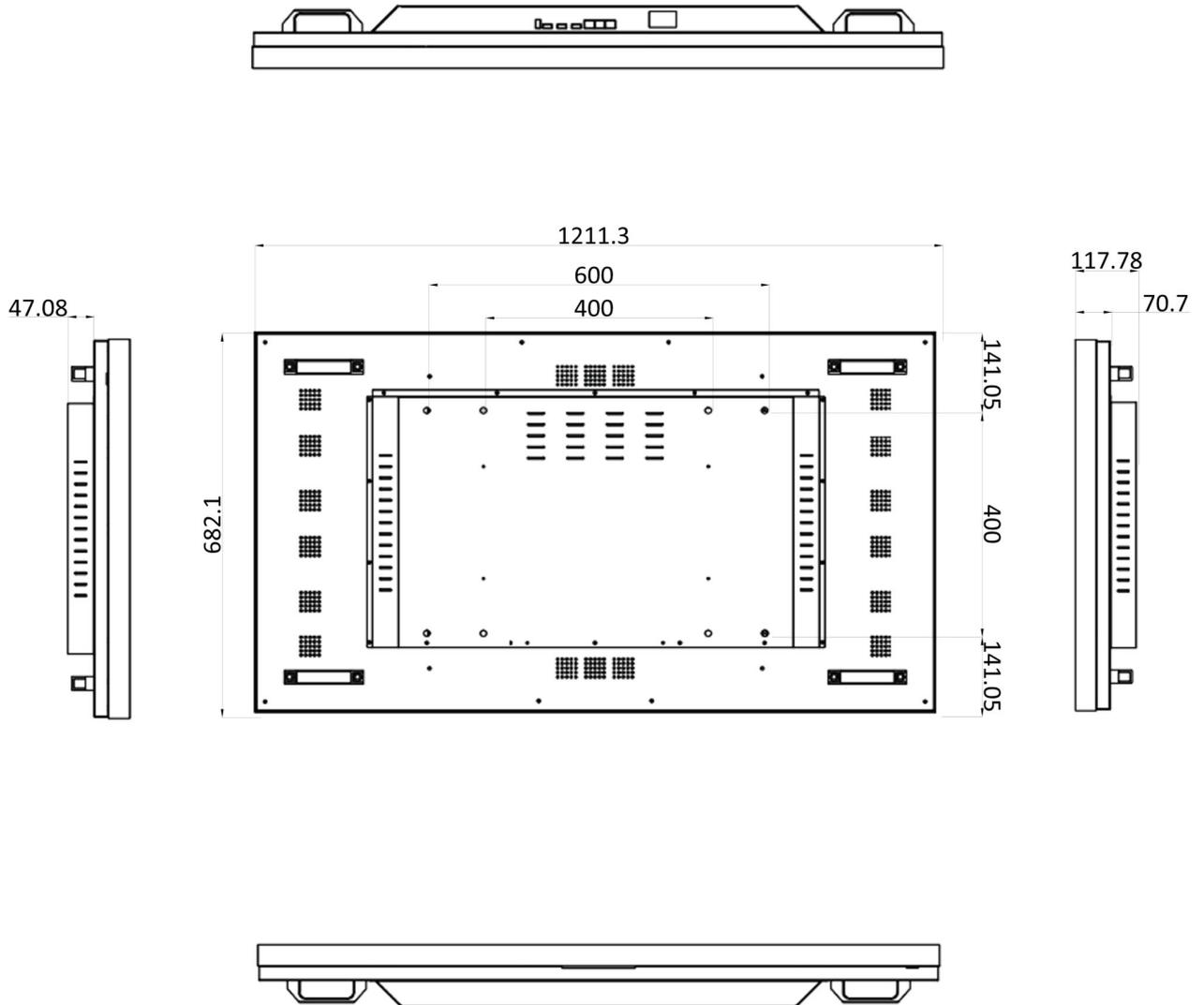| MODEL | VW55CD-OM-40003 |
|---|---|
| Screen Size | 55" |
| Resolution | 1920 x 1080 |
| Bezel Width | 3.5mm |
| Brightness (MAX) | 500cd/m² |
| LCD Technology | Commercial Grade IPS |
| Aspect Ratio | 16:9 |
| Contrast Ratio | 1400:1 |
| Display Color | 1.06B |
| **INTERFACE** | |
| HDMI In | 2 |
| DVI In | 1 |
| DP In | 1 |
| DP Out | 1 |
| RS232 In/Out | 1 / 1 |
| USB In | 1 |
| **FEATURES** | |
| Daisy Chain | Up to 10x10 Total 100 monitors |
| Image Splicing | Yes |
| Anti Burn-In | Yes |
| **CABINET** | |
| Color/Material | Black/Metal |
| **POWER** | |
| Consumption | 200W |
| Electrical Rating | AC 100V ~ 240V, 50/60Hz |
| **TEMPERATURE** | |
| Operating | 0~50°C |
| **VESA™** | |
| Mount Size (mm) | 400 x400 / 600 x 400 |

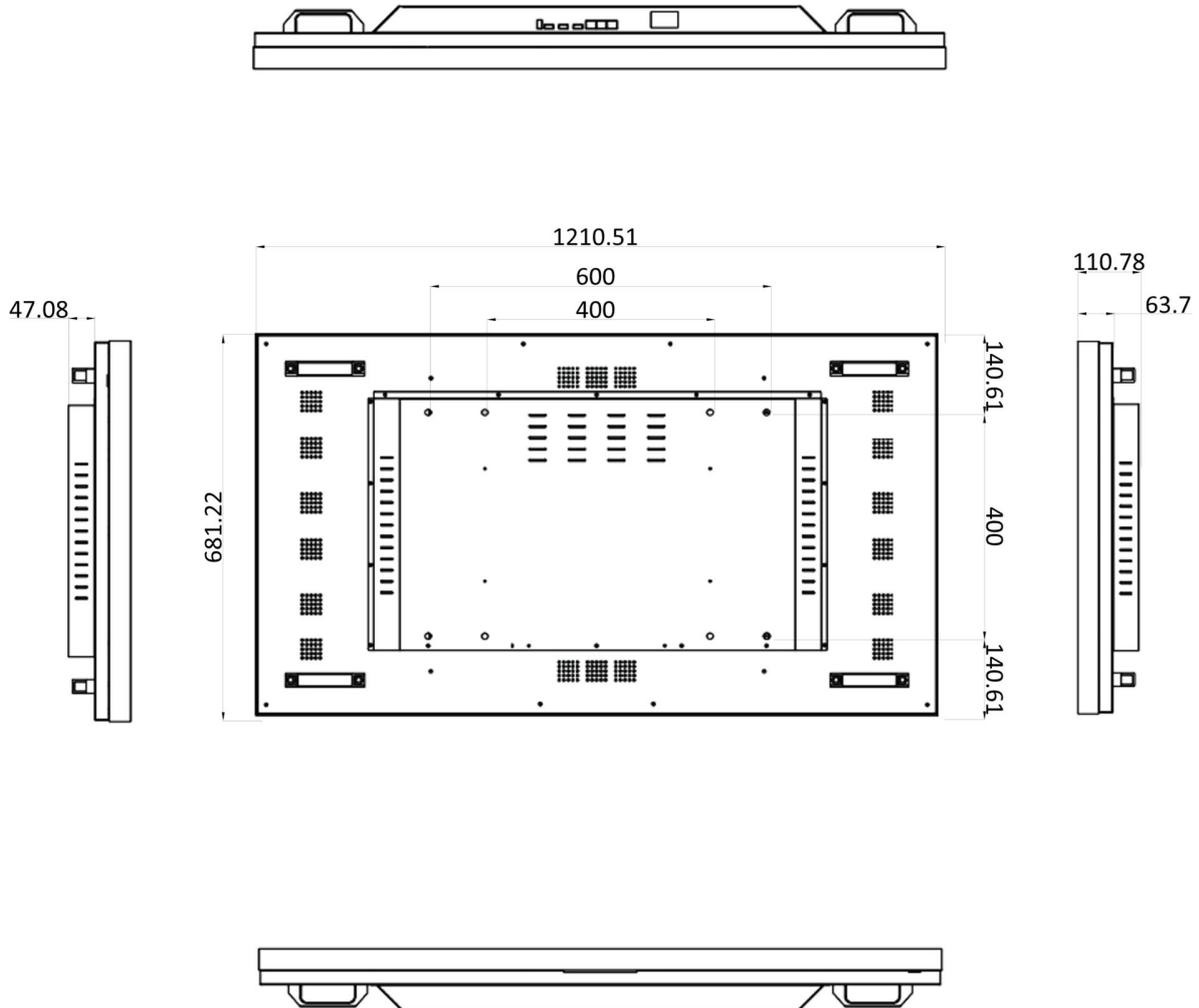*Specifications subject to change without any notice*

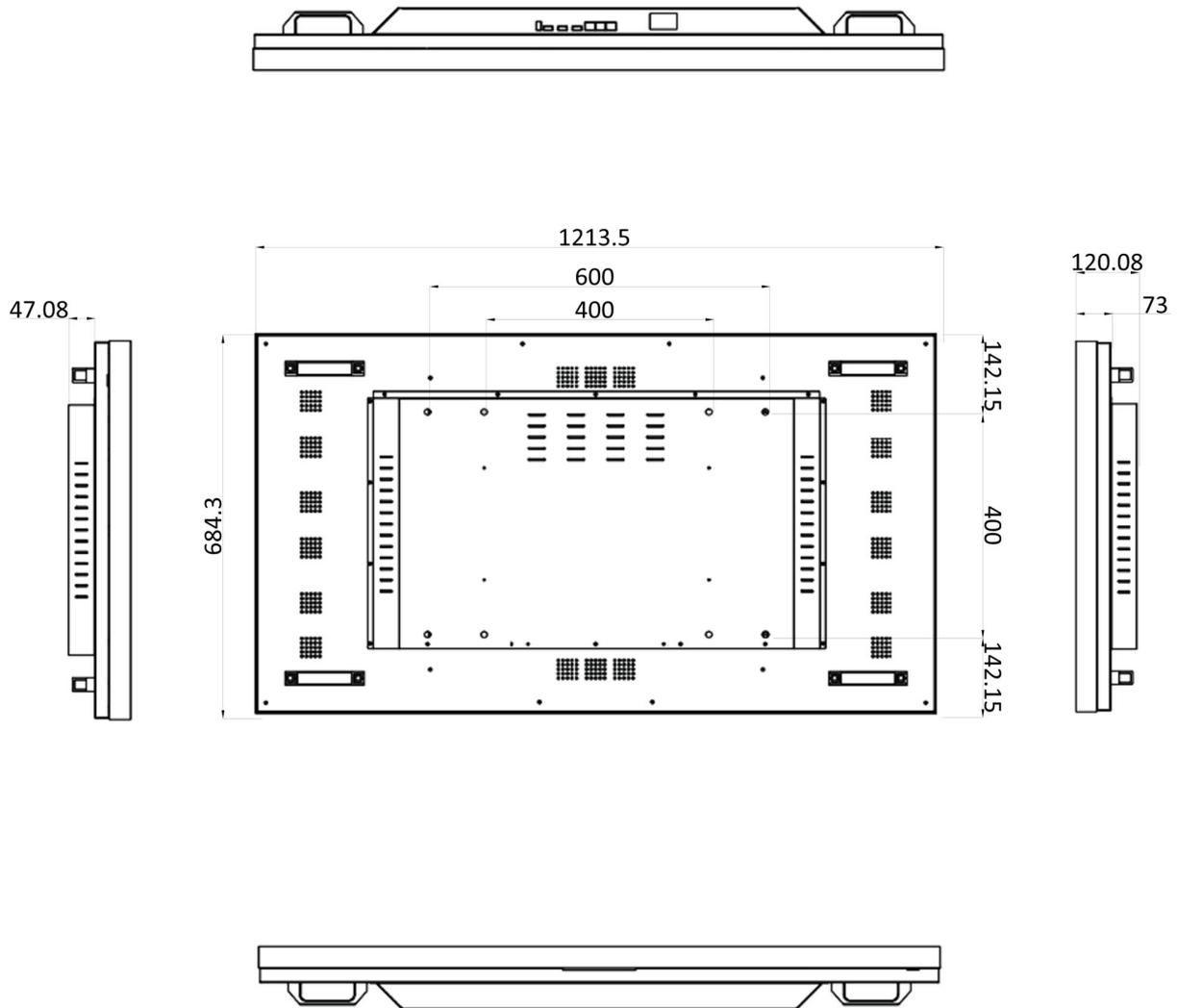# **6 Mechanical Dimension**

VW55CD-OM-40003

VW55CD-OM-40001

VW55CD-OM-40008

1210.51
600
400
47.08
110.78
63.7
140.61
400
140.61
681.22

VW55CD-OM-400S3

VW55CD-OM-400S1

VW55CD-OM-400S8



1210.51
600
400
47.08
681.22
110.78
63.7
140.61
400
140.61
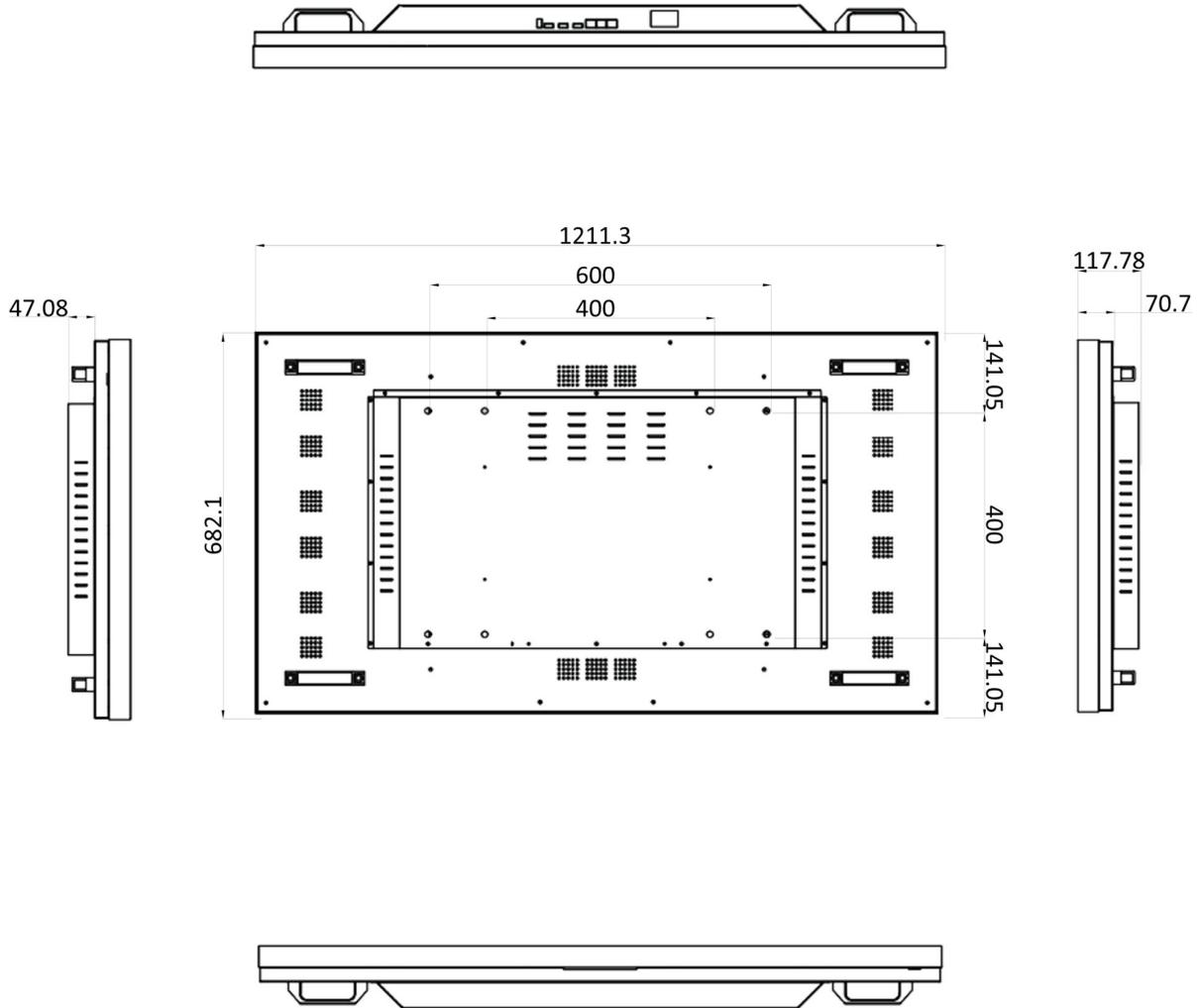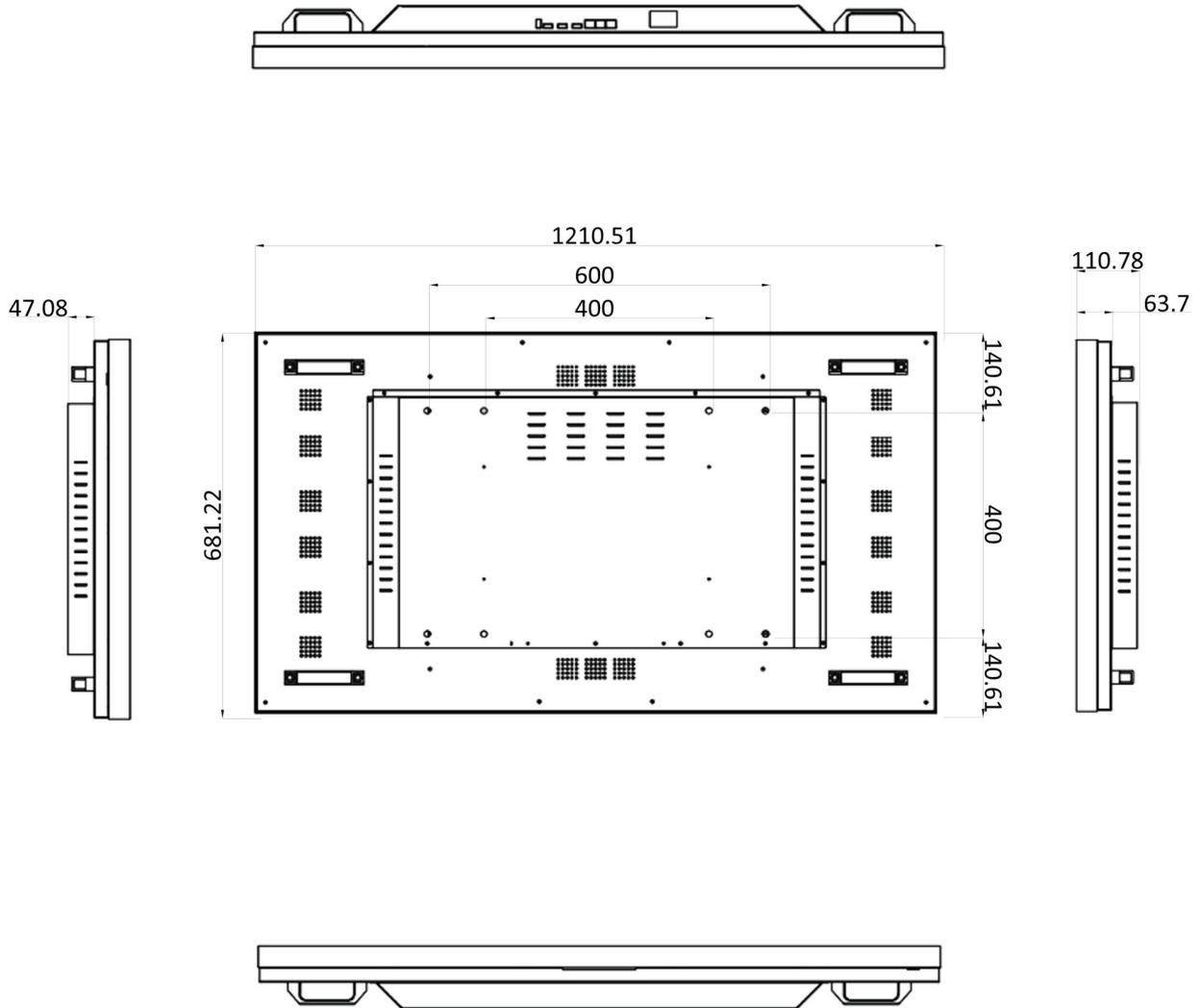
# 7 RS232 Configuration

| ITEM | SETTING |
|---|---|
| Baud Rate | 9600 |
| Data Bit | 8bit |
| Stop Bit | 1bit |
| Parity Bit | None |
| Stream Control | None |

xE0 0x05 0x07 0x02 0x1f -> Power Off

0xE0 0x05 0x07 0x02 0x20 -> Power On

| HEADER | LEN | ID | COMMAND | OPCODE | DATA0 | DATA1 | DATA2 | DATA3 | DATA4 |
|---|---|---|---|---|---|---|---|---|---|
| 0xE0 | 0x10(16) | 0x07(control command) | 0x02 | | data is accurate | data is accurate | data is accurate | data is accurate | data is accurate |
| | | | | **Global command** | | | | | |
| | | | | 0x82: Display screen address / Display ID<br>0x1b: Display machine code<br>0x1c: loading mode<br>0x1d: saving mode<br>0x4a: central control power-on<br>0x4b: central control shutdown<br>0x4c: central control signal source switching<br>0x4d: central control reset color temperature | | | | | |
| | | | | **zone control command** | | | | | |
| | | | | 0x11: splicing | databuf[6]<br>Channel:<br>0x0b:DP<br>0x0a:HDMI1<br>0x08:HDMI2<br>0x09:DVI<br>0x0c:HDMI3<br>0x10:AUTO | databuf[5]<br>video wall splicing toggle:<br>0x01: off<br>0x02: on | | | set dp loop:<br>databuf[7]=uart_buf[4]<br>default: 0x00 |
| | | | | 0x82: Display screen address / Display ID | | | | | |
| | | | | 0x1b: Display machine code | | | | | |
| | | | | 0x1e: Switch signal source | databut[5]<br>Channel: command values as above | | | | |
| | | | | 0x1f: power off | | | | | |
| | | | | 0x20: power on | | | | | |
| | | | | 0x58: Logo switch | databut[5]<br>0x00: off<br>0x01: on | | | | |
| | | | | 0x59: image inversion | databuf[5]<br>0x00: 180°<br>0x01: 90°<br>0x02: 270°<br>0x03: horizontal flip<br>0x04: vertical flip | | | | |

| | | | | | DATA0 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0x21: virtual remote control | databuf[5]<br>0x11: KEY_LEFT<br>0x10: KEY_RIGHT<br>0x13: KEY_INPUT<br>0x12: KEY_MENU<br>0x16: KEY_UP<br>0x15: KEY_DOWN<br>0x62: KEY_OK<br>0xD6: KEY_EXIT<br>0xC1: KEY_MUTE | | | | |
| | | | | 0x22: No signal blue screen or black screen | databuf[5]<br>0x01: blue screen<br>0x00: black screen | | | | |
| | | | | 0x24: image brightness | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x25: image contrast | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x26: image saturation | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |

| HEADER | LEN | ID | COMMAND | | DATA0 | DATA1 | DATA2 | DATA3 | DATA4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0x27: image clarity | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x28: image hue | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x2c: R-GAIN | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x2d: G-GAIN | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x2e: B-GAIN | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x2f: R-OFFSET | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x30: G-OFFSET | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x31: B-OFFSET | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
| | | | | 0x32: fan control | databuf[4]<br>0x00: off<br>0x01: intelligent<br>0x02: on | databuf[5]<br>Fan temperature<br>(used in<br>conjunction with<br>smart mode) | | | |

| | | | 0x33: backlight | databuf[4]<br>0x07: increase<br>0x08: decrease | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0x38: horizontal position | datadbuf[5] | datadbuf[6]<br>0x07: increase<br>0x08: decrease | | | |
| | | | 0x39: vertical position | datadbuf[5] | datadbuf[6]<br>0x07: increase<br>0x08: decrease | | | |
| | | | 0x3a: horizontal size | datadbuf[5] | datadbuf[6]<br>0x07: increase<br>0x08: decrease | | | |
| | | | 0x3b: vertical size | datadbuf[5] | datadbuf[6]<br>0x07: increase<br>0x08: decrease | | | |
| | | | 0x3d: user reset | | | | | |
| | | | 0x3e: factory reset | | | | | |
| | | | 0x42: TI MODE | datadbuf[5]<br>0x00:TI1<br>0x01:TI0 | | | | |
| | | | 0x43: BIT MODE | datadbuf[5]<br>0x00: BIT6<br>0x01: BIT8<br>0x02: BIT10 | | | | |

| HEADER | LEN | ID | COMMAND | | DATA0 | DATA1 | DATA2 | DATA3 | DATA4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0x44: screen parameter reset | | | | | |
| | | | | 0x48: screen saver | databuf[5]<br>0x00：off<br>0x01：on | | | | |
| | | | | 0x49: splicing unit version number | | | | | |
| | | | | 0x62: Gain adjustment (color block selection) | R GAIN value | B GAIN value | B GAIN value | | |
| | | 0x06: modify ID | 0x83 | 0x01 | databuf[4]:<br>ID value | databuf[5]:<br>0xff | databuf[6]:<br>0xff | | |