

Digital View DVS-1600

## High Integration Interface Controller



© Artisan Technology Group

**In Stock**

**Used and in Excellent Condition**

**Open Web Page**

<https://www.artisanng.com/50791-1>

All trademarks, brandnames, and brands appearing herein are the property of their respective owners.



Your **definitive** source  
for quality pre-owned  
equipment.

**Artisan Technology Group**

(217) 352-9330 | [sales@artisanng.com](mailto:sales@artisanng.com) | [artisanng.com](http://artisanng.com)

- Critical and expedited services
- In stock / Ready-to-ship

- We buy your excess, underutilized, and idle equipment
- Full-service, independent repair center

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

**PC, DVI, VIDEO INTERFACE CONTROLLER  
FOR TFT PANEL**

**Model: DVS-1600**

Part number : 41714002X-3

**INSTRUCTIONS**

**CONTENTS**

|       |                                                                                 |
|-------|---------------------------------------------------------------------------------|
| Page: | <b>2. Introduction, How to Proceed, Usage Note, Disclaimer</b>                  |
|       | <b>2. System design</b> – Diagram of a suggested system                         |
|       | <b>4. Assembly notes</b> – Important information about system elements          |
|       | <b>6. Connection &amp; Operation</b> – How to use the controller                |
|       | <b>10. Connectors, pinouts &amp; jumpers</b> – Essential connection information |
|       | <b>18. Controller dimensions</b>                                                |
|       | <b>19. Application notes</b>                                                    |
|       | <b>21. Troubleshooting</b>                                                      |
|       | <b>22. Specifications</b>                                                       |
|       | <b>23. Appendix I – Graphic &amp; Video Mode Support Table</b>                  |
|       | <b>25. Appendix II – RS-232 control protocols</b>                               |
|       | <b>29. Appendix III – Mapping definition</b>                                    |
|       | <b>31. Appendix IV – Auto Color Gain</b>                                        |
|       | <b>32. Appendix V – DV remote control unit work for DVS-1600</b>                |
|       | <b>33. Warranty, Caution &amp; Limitation of Liability, Trademarks</b>          |
|       | <b>34. Contact details</b>                                                      |

**It is essential that these instructions are read and understood before connecting or powering up this controller.**

## Introduction

Designed for LCD monitor and other flat panel display applications, the DVS-1600 controller provides easy to use interface controller for:

- TFT (active matrix) LCDs with LVDS / TTL single pixel interface of 1680x1050, 1600x1200, 1400x1050, 1440x900, 1366x768, 1280x1024, 1280x800, 1280x768, 1024x768, 1024x600, 800x600, 800x480, 640x480, 480x640 resolution
- Computer video signals of UXGA, SXGA, XGA, SVGA, VGA standard

### HOW TO PROCEED

- Ensure you have all parts & that they are correct, refer to:
  - Connection diagram (separate document for each panel)
  - Connector reference (in following section)
  - Assembly notes
- Check controller switch & jumper settings (errors may damage the panel)
- Prepare the PC
- Connect the parts
- Understand the operation and functions (in following section)

### IMPORTANT USAGE NOTE

This product is for use by system developers and integrators, the manufacturer accepts no liability for damage or injury caused by the use of this product. It is the responsibility of the developer, integrators or other user of this product to:

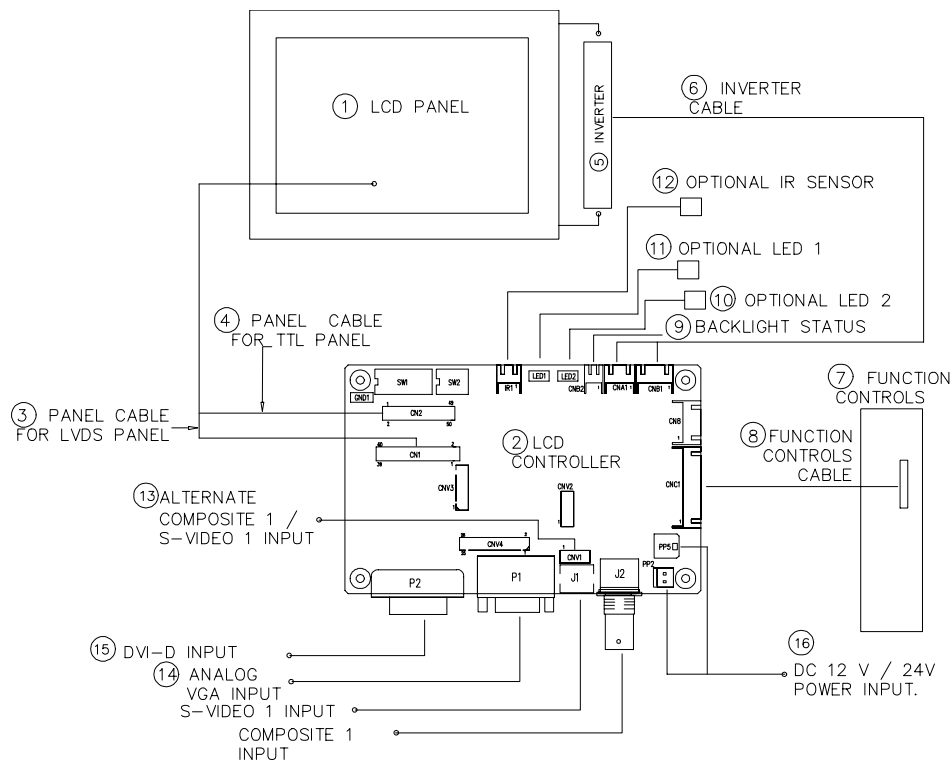
- Ensure that all necessary and appropriate safety measures are taken.
- Obtain suitable regulatory approvals as may be required.
- Check power settings to all component parts before connection.
- Understand the operation and connectivity requirements of this controller.

### DISCLAIMER

There is no implied or expressed warranty regarding this material.

## SYSTEM DESIGN

A typical LCD based display system utilising this controller is likely to comprise the following:



### Summary:

1. LCD panel
2. LCD controller card, DVS-1600
3. LVDS cable (for connection with LVDS panel)
4. TTL cable (for connection with TTL panel)
5. Inverter for CCFT backlight (if not built into LCD)
6. Inverter cable
7. Function controls

8. Function controls cable
9. Backlight status
10. Status LED 2 (Optional)
11. Status LED 1 (Optional)
12. IR sensor (Optional)<sup>##</sup>
13. Alternate Composite 1 / S-Video 1 input
14. Analog VGA input / Composite 1 / S-Video 1 input
15. DVI-D input
16. Power input (12VDC / 24VDC)

Digital View offers a range of accessories such as listed above, to make up complete display solution.

<sup>##</sup> - Support on V1.10.00 or up firmware revision.

## ASSEMBLY NOTES

This controller is designed for monitor and custom display projects using 1680x1050, 1600x1200, 1400x1050, 1440x900, 1366x768, 1280x1024, 1280x800, 1280x768, 1024x768, 1024x600, 800x600, 800x480, 640x480, 480x640 resolution TFT panels with a VGA, SVGA, WXGA, XGA, SXGA or UXGA signal input. The following provides some guidelines for installation and preparation of a finished display solution.

**Preparation:** Before proceeding it is important to familiarize yourself with the parts making up the system and the various connectors, mounting holes and general layout of the controller. As much as possible connectors have been labelled. Guides to connectors and mounting holes are shown in the following relevant sections.

1. **LCD Panel:** This controller is designed for typical LVDS or TTL single interface panels with panel voltage 3.3V, 5V, 12V or 18V. Due to the variation between manufacturers of panels signal timing and other panel characteristics, factory setup and confirmation should be obtained before connecting to a panel. **(NOTE: Check panel power jumper settings before connection)**
2. **Controller:** Handle the controller with care as static charge may damage electronic components. Make sure correct jumper and dip switches settings to match the target LCD panel.
3. **LCD signal cable (LVDS panel):** In order to provide a clean signal it is recommended that LVDS signal cables are no longer than 46cm (18 inches). If those wire cabling is utilized these can be made into a harness with cable ties. Care should be taken when placing the cables to avoid signal interference. Additionally it may be necessary in some systems to add ferrite cores to the cable to minimise signal noise.
4. **LCD signal cable (Single pixel TTL panel):** In order to provide a clean signal it is recommended that LCD signal cables should not longer than 33cm (13 inches). If loose wire cabling is utilised these can be made into a harness with cable ties. Care should be taken when placing the cables to avoid signal interference. Additionally it may be necessary in some systems to add ferrite cores to the cables to minimise signal noise.
5. **Inverter:** This will be required for the backlight of an LCD, some LCD panels have an inverter built in. As LCD panels may have 1 or more backlight tubes and the power requirements for different panel backlights may vary it is important to match the inverter in order to obtain optimum performance. See Application notes page 19 for more information on connection.
6. **Inverter Cables:** Different inverter models require different cables and different pin assignment. Make sure correct cable pin out to match inverter. Using wrong cable pin out may damage the inverter.
7. **Function Controls:** The following section discusses the controls required and the section on connectors provides the detail. The controls are minimal: On/Off, Backlight Brightness (depends on inverter), OSD (5 momentary buttons) analog VR type or (8 momentary buttons) digital type.
8. **Function controls cable:** The cables to the function switches should be of suitable quality and length so that impedance does not affect performance. Generally lengths up to 1 meter (3 feet) should be acceptable.
9. **Backlight status :** It only functions when connecting with the panel which support backlight status detection pin.
10. **Backlight status LED (Optional) :** This LED indicates the backlight status. This function is only available when CNB2 are properly connected and the panel is support the backlight status function.

Backlight LED status (LED2) :

| State            | LED color |
|------------------|-----------|
| Backlight fault  | RED       |
| Backlight normal | GREEN     |

11. **Controller status LED (Optional) :** This LED indicates the controller status. The pin direction of the LED should be corrected for right colour indication. Red colour stands for standby. Green colours stands for signal on. The status LED is an optional part only, can be unconnected.

Controller LED status (LED1) :

| State                      | LED color |
|----------------------------|-----------|
| No signal & backlight off  | RED       |
| No signal & backlight on   | ORANGE    |
| With signal & backlight on | GREEN     |

12. **IR sensor:** It is an optional part only, can be unconnected if not using IR remote control. (Support in V1.10.00 or up firmware revision.) – See Appendix VI for button definition.
13. **Alternate Composite 1 / S-Video 1 input :** Support alternate composite 1 / S-Video 1 input on CNV1 connector.
14. **VGA Input / S-Video 1 / Composite 1 :**
  - **VGA input cable :** As this may affect regulatory emission test results and the quality of the signal to the controller a suitably shielded cable should be utilized.
  - **AV cables:** Standard Composite or S-video cables can be used. Reasonable quality cable should be used to avoid image quality degradation.
15. **DVI-D input cable :** Plug the DVI cable to the connector P2 on the controller board.

#### 16. 12V / 24VDC power input :

- **Power Input:** 12V DC / 24VDC is required, this should be a regulated supply. The power rating is depending on the panel and inverter used. Normally, power supply with 3.5Amp current output should be enough for most of 4x CCFT panels. Although the controller provides power regulation for the LCD power this does not relate to the power supplied to the backlight inverter. If an unregulated power supply is provided to an inverter any fluctuations in power may affect operation, performance and lifetime of the inverter and or backlight tubes.  
24VDC input is required when the panel output voltage is 18VDC. Please refer to page 11-12 for proper jumper settings.
- **Power output:** Note the controller has an overall 3Amp current limit and the current available from the auxiliary power output will be dependent on the power input and other system requirements.
- **Power Safety:** Note that although only 12VDC / 24VDC is required as 'power-in' a backlight inverter for panel backlighting produces significantly higher voltages (the inverter does not connect to the ground plane). We strongly advise appropriate insulation for all circuitry.
- **EMI:** Shielding will be required for passing certain regulatory emissions tests. Also the choice of external Controller to PC signal cable can affect the result.
- **Ground:** The various PCB mounting holes are connected to the ground plane.
- **Servicing:** The board is not user serviceable or repairable. Warranty does not cover user error in connecting up to the controller and is invalidated by unauthorized modification or repairs.
- **Controller Mounting:** It is recommended that a clearance of at least 10mm is provided above and 5mm below the controller when mounted. Additionally consideration should be given to:
  - Electrical insulation.
  - Grounding.
  - EMI shielding.
  - Cable management. Note: It is important to keep panel signal cables apart from the inverter & backlight cables to prevent signal interference.
  - Heat & Ventilation: Heat generated from other sources, for example the backlight of a very high brightness panel may generate significant heat which could adversely affect the controller.
  - Other issues that may affect safety or performance.
- **PC Graphics Output:** A few guidelines:
  - Signal quality is very important, if there is noise or instability in the PC graphics output this may result in visible noise on the display.
  - Refer to graphics modes table in specifications section for supported modes.
  - Non-interlaced & interlaced video input is acceptable.

**IMPORTANT: Please read the Application Notes section for more information.**

## CONNECTION & OPERATION

**CAUTION:** Never connect or disconnect parts of the display system when the system is powered up as this may cause serious damage.

### CONNECTION

Connection and usage is quite straight forward (it is useful to have the relevant connection diagram available at this time):

1. **LCD panel & Inverter:** Connect the inverter (if it is not built-in the panel) to the CCFT lead connector of the LCD panel.
2. **LVDS type panels:** Plug the LVDS signal cable direct to CN1 (if necessary). Insert the panel end of the cable to the LCD panel connector.
3. **TTL single pixel type panels:** Plug the signal cables direct to CN2. Plug the other end of cables to the LCD connector board (if connector board is required, otherwise the signal can be direct plug to the LCD panel connector). Then plug the board connector to the LCD panel connector.
4. **Inverter & Controller:** Plug the inverter cable to CNB1 and CNA1 (if necessary). Plug another end to the connector on the inverter.
5. **Function switch & Controller:** Plug the OSD switch mount cable to CNC1 on the controller board and another to the OSD switch mount.
6. **LED 1 :** Plug in a 3-way with dual colour LED to connector LED1 on the controller board for indicating the controller status.
7. **LED 2 :** Plug in a 3-way with dual color LED to connector LED2 on the controller board for indicating the backlight status. This function is only available when CNB2 are proper connected and the panel is support the backlight status function.
8. **IR & Controller:** Plug in a 3-way with IR sensor to connector IR1 on the controller board. (IR remote control function support in V1.10.00 or up firmware revision)
9. **Jumpers :** Check all jumpers are set correctly. Details referring the connection diagram at <http://www.digitalview.com/controllers/csg.php>
10. **Jumpers & Inverter & Panel voltage:** Particularly pay attention to the settings of JA3, JA6, JB2, JB3. JB2 & JB3 are used for inverter control (read inverter specification and information on the jumper table to define the correct settings). JA3 & JA6 are used for panel voltage input (read panel specification and information on the jumper table to define the correct settings).
11. **DVI cable :** Plug the DVI cable to the connector P2 on the controller board.
12. **VGA cable :** Plug the VGA cable to the connector P1 on the controller board.
13. **Power supply & Controller:** Plug the DC 12V / 24V power in to the connector PP2. You can consider to use DigitalView mating power cable P/N 426013800-3, 160mm. Please read the jumper table in page 11-12 to define the correct settings. Otherwise it may break down the panel.
14. **Power on:** Switch on the controller board and panel by using the OSD switch mount.

**CAUTION:** Never connect or disconnect parts of the display system when the system is powered up as this may cause serious damage.

Controller LED status (LED1) :

| State                      | LED color |
|----------------------------|-----------|
| No signal & backlight off  | RED       |
| No signal & backlight on   | ORANGE    |
| With signal & backlight on | GREEN     |

Backlight LED status (LED2) :

| State            | LED color |
|------------------|-----------|
| Backlight fault  | RED       |
| Backlight normal | GREEN     |

General:

- If you are using supplied cables & accessories, ensure they are correct for the model of panel and controller.
- If you are making your own cables & connectors refer carefully to both the panel & inverter specifications and the section in this manual, "Connectors, Pinouts & Jumpers" to ensure the correct pin to pin wiring.

### PC SETTINGS

The controller has been designed to take a very wide range of input signals however to optimize the PC's graphics performance we recommend choosing 60Hz vertical refresh rate – this will not cause screen flicker.

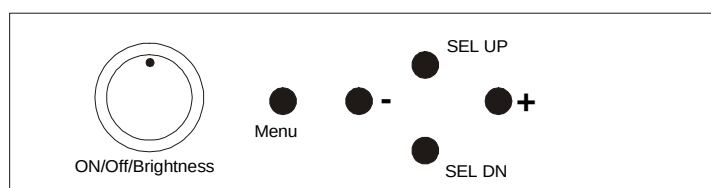
### OPERATION

Once the system has been connected and switched on there are a number of functions available to adjust the display image as summarized in the following sections. The settings chosen will be saved for each mode independently.

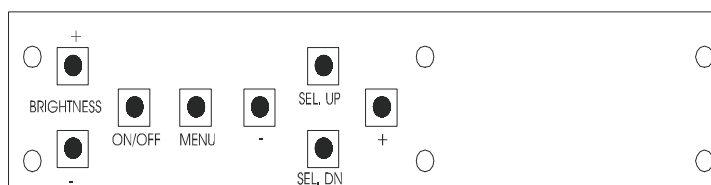
## LCD DISPLAY SYSTEM SETTINGS

NOTE: By way of explanation the following refers to a set of sample buttons that may be obtained as an option. In addition to power on/off and connection for backlight brightness the controller provides an On Screen Display of certain functions which are controlled by 5 momentary type buttons (analog VR type) or 8 momentary type buttons (digital type):

| Controls                                                                                            | Analog VR type                                                                     | Digital type                                                                       |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| On/Off – turns controller board power on                                                            | VR toggle switch                                                                   | On/Off button                                                                      |
| Brightness – controls backlight brightness                                                          | Rotary VR                                                                          | Brightness +/- buttons                                                             |
| Menu – turns OSD menu On or Off (it will auto time off)<br>(Function with signal input only)        | Menu button                                                                        | Menu button                                                                        |
| Select – Select function / Confirm<br>(under OSD menu on state)                                     | SEL DN                                                                             | SEL DN                                                                             |
| Move up to select individual RGB color level OSD page<br>(under OSD menu on state)                  | SEL UP                                                                             | SEL UP                                                                             |
| + – increase the setting / moves the selector to the next function<br>(under OSD menu on state)     | +                                                                                  | +                                                                                  |
| - - decrease the setting / moves the selector to the previous function<br>(under OSD menu on state) | -                                                                                  | -                                                                                  |
| Load factory default                                                                                | Press and hold SEL DN button to power on the controller                            | Press and hold SEL DN button to power on the controller                            |
| Lock OSD menu<br>(Function with signal input only)                                                  | Press and hold MENU button for 15 seconds to enable / disable lock of the OSD menu | Press and hold MENU button for 15 seconds to enable / disable lock of the OSD menu |
| Switch to next input source<br>(under OSD menu off state)                                           | +                                                                                  | +                                                                                  |



Analog VR type

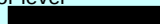


Digital type

## OSD Functions

| Selection page |  |                                  |                                                                                    |
|----------------|--|----------------------------------|------------------------------------------------------------------------------------|
|                |  | Select input source ▶            |                                                                                    |
|                |  |                                  | Select input source to Analog RGB                                                  |
|                |  |                                  | Select input source to DVI                                                         |
|                |  |                                  | Select input source to S-Video 1                                                   |
|                |  |                                  | Select input source to Composite 1                                                 |
|                |  |                                  | Select input source to S-Video 2 (No function now)                                 |
|                |  |                                  | Select input source to Composite 2 (No function now)                               |
|                |  | <b>Auto Source Seek</b>          | ON – Auto source select always enable<br>OFF – Disable auto source select function |
|                |  | <b>Video system selection* ▶</b> |                                                                                    |



|                                                                                                                  |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                  |                                                                                     | Auto                                                                                | Select Auto video system detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |                                                                                     | PAL                                                                                 | Select PAL video system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                  |                                                                                     | PAL M                                                                               | Select PAL M video system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                  |                                                                                     | NTSC                                                                                | Select NTSC video system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                  |                                                                                     | NTSC 4.43                                                                           | Select NTSC 4.43 video system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                  |                                                                                     | SECAM                                                                               | Select SECAM video system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                  | 1280<br>1366                                                                        | Wide screen mode<br>information<br>display#                                         | Select the input mode (1280 / 1360 / 1366 / 1368) to recognize and display the correct input signal information display on the OSD menu.<br>1280 : 1280x768<br>1360 : 1360x768<br>1366 : 1366x768<br>1368 : 1368x768                                                                                                                                                                                                                                                                                                    |
|                                                                                                                  |                                                                                     | Exit                                                                                | Exit the OSD menu and save the settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  <b>Brightness and Contrast</b> |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                  |    | Brightness                                                                          | Increase/decrease brightness level.<br>Press – or + ( -  + ) Total : 256 steps                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                  |    | Contrast                                                                            | Increase/decrease panel contrast level.<br>Press – or + ( -  + ) Total : 192 steps                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                  |    | Saturation*                                                                         | Increase/decrease hue level.<br>Press – or + ( -  + ) Total : 256 steps                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                  |   | Hue*                                                                                | Increase/decrease saturation level<br>Press – or + ( -  + ) Total : 128 steps                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                  |  | Exit                                                                                | Exit the OSD menu and save the settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  <b>Color</b>                 |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                  | Auto                                                                                | Auto RGB Calibration#                                                               | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No (See appendix IV)                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                  |  | Color Temperature ▶                                                                 | (Adjust the warmth of the image displayed. The higher temperature the coolest image looks like. The lower temperature the warmest image looks like.)                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                  |                                                                                     |  | Adjust red color level<br>Press – or + ( -  + ) Total : 128 steps<br>Adjust green color level<br>Press – or + ( -  + ) Total : 128 steps<br>Adjust blue color level<br>Press – or + ( -  + ) Total : 128 steps<br><br>Press SEL UP/DN button to select item |
|                                                                                                                  |                                                                                     | 4200K                                                                               | Set the color temperature to 4200K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |                                                                                     | 5000K                                                                               | Set the color temperature to 5000K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |                                                                                     | 6500K                                                                               | Set the color temperature to 6500K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |                                                                                     | 7500K                                                                               | Set the color temperature to 7500K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |                                                                                     | 9300K                                                                               | Set the color temperature to 9300K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                  |  | Gamma adjustment ▶                                                                  | Adjust Gamma settings (0.4 / 0.6 / 1.0 / 1.6 / 2.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                  |                                                                                     | 0.4                                                                                 | Select Gamma to 0.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                  |                                                                                     | 0.6                                                                                 | Select Gamma to 0.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                  |                                                                                     | 1.0                                                                                 | Select Gamma to 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                  |                                                                                     | 1.6                                                                                 | Select Gamma to 1.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                  |                                                                                     | 2.2                                                                                 | Select Gamma to 2.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                                                                     |                                                                                    |                           |                                                                                                                              |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
|                                                                                     |   | Exit                      | Exit the OSD menu and save the settings                                                                                      |
|    | Position#                                                                          |                           |                                                                                                                              |
|                                                                                     |   | Autosetup                 | Auto adjust the positions, phase, frequency<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No           |
|                                                                                     |   | Frequency                 | Adjust the image horizontal size                                                                                             |
|                                                                                     |   | Phase                     | Fine tune the data sampling position (adjust image quality)                                                                  |
|                                                                                     |   | Image Horizontal Position | Use +/- to move the image horizontally<br>Press – or + ( - <input type="text"/> + )                                          |
|                                                                                     |   | Image Vertical Position   | Use +/- to move the image vertically<br>Press – or + ( - <input type="text"/> + )                                            |
|                                                                                     |   | Exit                      | Exit the OSD menu                                                                                                            |
|    | Utilities                                                                          |                           |                                                                                                                              |
|                                                                                     |   | OSD setting ▶             |                                                                                                                              |
|                                                                                     |   |                           | OSD Timeout : 0 / 10 / 20 / 30 / 40 / 50 / 60 seconds (Always on when set to 0)<br>Press – or + ( - <input type="text"/> + ) |
|                                                                                     |   |                           | OSD menu horizontal position<br>Press – or + ( - <input type="text"/> + )                                                    |
|                                                                                     |   |                           | OSD menu vertical position<br>Press – or + ( - <input type="text"/> + )                                                      |
|                                                                                     |   | Load Factory Default      | Initialize the setting stored in non-volatile memory                                                                         |
|                                                                                     |   | Sharpness                 | Adjust sharpness level<br>Press – or + ( - <input type="text"/> + ) Total : 49 steps                                         |
|                                                                                     |  | Exit                      | Exit the OSD menu                                                                                                            |
|  | Exit the OSD menu                                                                  |                           |                                                                                                                              |

[Firmware version : V1.10.00 or up]

\* - Function in Video mode only

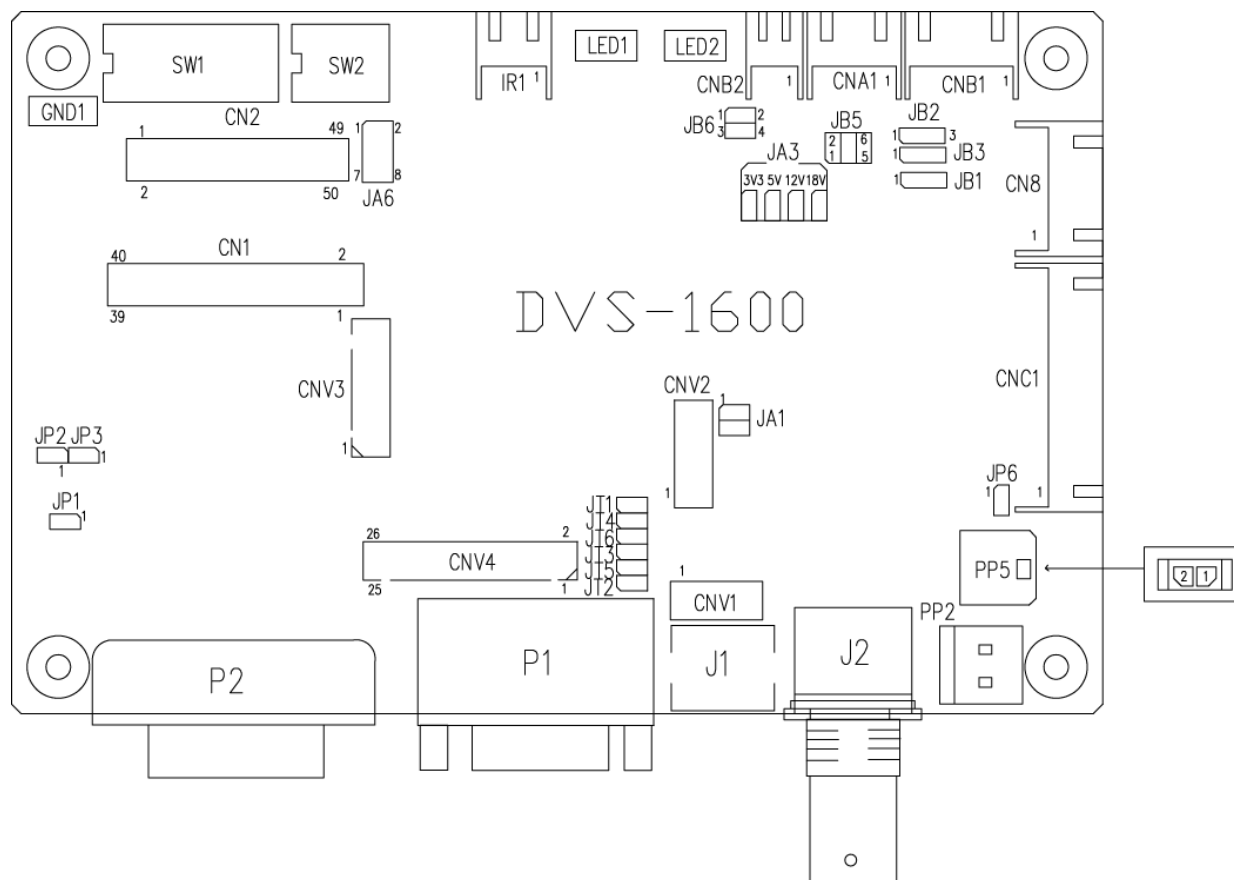
# - Function in ARGB mode only

Items marked ▶ have sub menus.

Exit the OSD menu to save the setting chosen

## CONNECTORS, PINOUTS & JUMPERS

The various connectors are:



### Summary: Connectors

| Ref                | Purpose                                        | Description                                                                                                         |
|--------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| CN1                | LVDS panel signal                              | Hirose 40-pin, DF13-40DP-1.25DSA (Mating type : DF13-40DS-1.25C)                                                    |
| CN2                | TTL panel signal                               | Hirose 40-pin, DF20G-40DP-1V (Mating type : DF20A-40DS-1C)                                                          |
| CN8                | Reserved                                       | JST 6-way, B6B-XH-A (Mating type : XHP-6)                                                                           |
| CNA1               | Auxiliary power output                         | JST 4-way, B4B-XH-A (Mating type : XHP-4)                                                                           |
| CNB1               | Backlight inverter                             | JST 5-way, B5B-XH-A (Mating type : XHP-5)                                                                           |
| CNB2               | Backlight status                               | JST 2-way, B2B-XH-A (Mating type : XHP-2)                                                                           |
| CNC1               | Function controls                              | JST 12-way, B12B-XH-A (Mating type : XHP-12)                                                                        |
| CNV1               | Alternate Composite 1 / S-Video 1 video in     | JST 5-way, B5B-PH-K (Matching type : PHR-5)<br>(Matching video cable P/N 426000500-3)                               |
| CNV2               | Reserved                                       | JST 6-way, B6B-PH-K (Matching type : PHR-6)                                                                         |
| CNV3               | Reserved                                       | Hirose 16-pin, DF11-16DP                                                                                            |
| CNV4               | Reserved                                       | Hirose 26-pin, DF11-26DP                                                                                            |
| IR1 <sup>###</sup> | Infra-Red sensor connector                     | JST 3-way, B3B-XH-A (Matching type : XHP-3)                                                                         |
| LED1               | Dual color LED connector for controller status | Header pin 3x1                                                                                                      |
| LED2               | Dual color LED connector for backlight status  | Header pin 3x1                                                                                                      |
| P1                 | ARGB signal input                              | DB-15 way high density 3 row                                                                                        |
| P2                 | DVI-D signal input                             | DVI-D connector                                                                                                     |
| PP2                | Power input (alternative)                      | DC power Molex 2 pin 0.156" pitch                                                                                   |
| PP5                | Power input                                    | Molex 43650-0200 compatible (Mating type : Molex 43645-0200 compatible)<br>(Matching power cable : P/N 426013800-3) |
| J1                 | S-video in                                     | Mini din 4-way                                                                                                      |
| J2                 | Composite video in                             | BNC connector                                                                                                       |

<sup>###</sup> - Support in V1.10.00 firmware or up revision.

Summary: Jumpers setting

| Ref | Purpose                                          | Note                                                                                                                                                                                                     |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JA1 | On board +5V logic power enable                  | 1-3 & 2-4 closed, factory set, do not remove                                                                                                                                                             |
| JA3 | Panel power voltage select                       | See panel voltage setting table 1<br><b>CAUTION:</b> Incorrect setting will cause panel damage                                                                                                           |
| JA6 | Panel power voltage select                       | See panel voltage setting table 1<br><b>CAUTION:</b> Incorrect setting will cause panel damage                                                                                                           |
| JB1 | Backlight brightness voltage range               | 1-2 closed = 3.3V max<br>2-3 closed = 5V max                                                                                                                                                             |
| JB2 | Backlight inverter on/off control – signal level | 2-3 = On/Off control signal 'High' = +5V<br>1-2 = On/Off control signal 'High' = +3.3V<br>Open = On/Off control signal 'High' = Open collector<br><b>CAUTION:</b> Incorrect setting can damage inverter. |
| JB3 | Backlight inverter on/off control – polarity     | 1-2 = control signal 'high' = CCFT ON<br>2-3 = control signal 'low' = CCFT ON                                                                                                                            |
| JB5 | Backlight control type selection                 | 1-2 = VR/Digital switch mount control<br>3-4 = Analog backlight brightness control via RS-232 command (0xe0) – voltage range 0~5V<br>5-6 = Reserved                                                      |
| JB6 | Backlight status                                 | 1-2, 3-4 closed = Backlight status Low – Normal<br>1-3, 2-4 closed = Backlight status High - Normal<br>Open = Backlight status not used                                                                  |
| JP1 | Reserved                                         | Reserved for internal programming use (Always 1-2 closed)                                                                                                                                                |
| JP2 | Reserved                                         | Reserved                                                                                                                                                                                                 |
| JP3 | Reserved                                         | Reserved                                                                                                                                                                                                 |
| JP6 | Input power control                              | Short = External switch control<br>Open = Switch mount control                                                                                                                                           |
| JT1 | Reserved                                         | Reserved                                                                                                                                                                                                 |
| JT2 | Composite 1 video-in terminator enable           | Open = composite video 1 input is not terminated<br>Close = composite video 1 input is terminated with 75Ω                                                                                               |
| JT3 | S-Video 1 chroma-in terminator enable            | Open = S-video 1 chroma input is not terminated<br>Close = S-video 1 chroma input is terminated with 75Ω                                                                                                 |
| JT4 | Reserved                                         | Reserved                                                                                                                                                                                                 |
| JT5 | S-Video 1 luma-in terminator enable              | Open = S-video 1 luma input is not terminated<br>Close = S-video 1 luma input is terminated with 75Ω                                                                                                     |
| JT6 | Reserved                                         | Reserved                                                                                                                                                                                                 |
| SW1 | Panel selection                                  | See table below                                                                                                                                                                                          |
| SW2 | Panel selection                                  | See table below                                                                                                                                                                                          |

Table 1 : Panel voltage setting table :

| Input voltage via PP2 | Panel Voltage | JA3        | JA6       | Jumper on board |
|-----------------------|---------------|------------|-----------|-----------------|
| 12VDC                 | 3.3V          | 3V3 closed | 1-3 & 2-4 |                 |
|                       | 5V            | 5V closed  | 1-3 & 2-4 |                 |
|                       | 12V           | OPEN       | 5-7 & 6-8 |                 |

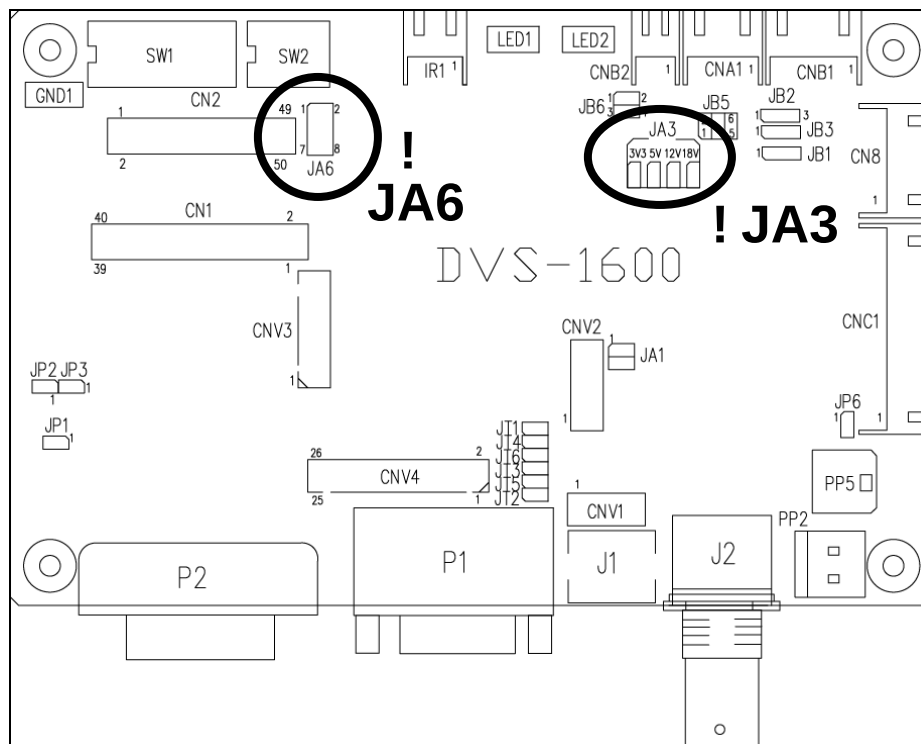
**CAUTION:** Incorrect setting can damage panel & controller

| Input voltage via PP2 | Panel Voltage | JA3        | JA6       | Jumper on board |
|-----------------------|---------------|------------|-----------|-----------------|
| 24VDC**               | 3.3V          | 3V3 closed | 1-3 & 2-4 |                 |
|                       | 5V            | 5V closed  | 1-3 & 2-4 |                 |
|                       | 12V           | 12V closed | 3-5 & 4-6 |                 |
|                       | 18V           | 18V closed | 3-5 & 4-6 |                 |
|                       |               |            |           |                 |

**CAUTION:** Incorrect setting can damage panel & controller

**\*\* Please make sure the backlight inverter must support 24V supply. Because CNA1 pin 1 and CNB1 pin 2 will output 24VDC if input 24VDC via PP2.**

JA3 & JA6 location on board : (Please pay attention to the jumper settings on JA3 & JA6 which are red in color)



**DIP Switch selection – SW1**

| Pos #1                 | Pos #2 | Pos #3 | Pos.#4 | Description                                                                                           | Panel resolution                         |
|------------------------|--------|--------|--------|-------------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>For WUXGA panel</b> |        |        |        |                                                                                                       |                                          |
| OFF                    | OFF    | OFF    | OFF    | AU Optronics B170UW02 V0 <sup>(3)</sup> (Tested)                                                      | 1920x1200                                |
| ON                     | OFF    | OFF    | OFF    | Samsung LTM230HT01 <sup>(4)</sup> (Tested)                                                            | 1920x1080                                |
| <b>For UXGA panel</b>  |        |        |        |                                                                                                       |                                          |
| ON                     | OFF    | OFF    | OFF    | NEC NL160120BC27-14 (Tested)                                                                          | 1600x1200                                |
| <b>For WXGA panel</b>  |        |        |        |                                                                                                       |                                          |
| ON                     | OFF    | OFF    | OFF    | Samsung LTA260W2-L01 <sup>(2)</sup> (Tested)                                                          | 1366x768                                 |
| ON                     | ON     | OFF    | OFF    | Samsung LTA460WS-L03                                                                                  | 1366x768                                 |
| OFF                    | OFF    | ON     | OFF    | Sharp LQ315T3LZ24 /<br>AU Optronics M156XW01 V0                                                       | 1366x768                                 |
| ON                     | OFF    | ON     | OFF    | LG LC420W02-A4                                                                                        | 1366x768                                 |
| OFF                    | ON     | ON     | OFF    | NEC NL12880BC20-02D <sup>(1)</sup> (Tested)                                                           | 1280x800                                 |
| OFF                    | ON     | OFF    | OFF    | NEC NL12876BC26-21                                                                                    | 1280x768                                 |
| ON                     | ON     | ON     | OFF    | AU Optronics M220EW01 <sup>(3)</sup>                                                                  | 1680x1050                                |
| <b>For SXGA panels</b> |        |        |        |                                                                                                       |                                          |
| ON                     | OFF    | OFF    | ON     | NEC NL128102BC29-01B (Tested)                                                                         | 1280x1024                                |
| ON                     | ON     | ON     | OFF    | Fujitsu FLC48SXC8V                                                                                    | 1280x1024                                |
| OFF                    | ON     | OFF    | ON     | Sharp LQ181E1LW31 <sup>(2)</sup> (Tested)                                                             | 1280x1024                                |
| ON                     | ON     | OFF    | ON     | Samsung LTM170ET01 <sup>(4)</sup> (Tested)                                                            | 1280x1024                                |
| OFF                    | OFF    | ON     | ON     | AU Optronics M190EG01 <sup>(4)</sup> (Tested)                                                         | 1280x1024                                |
| <b>For XGA panel</b>   |        |        |        |                                                                                                       |                                          |
| OFF                    | OFF    | ON     | ON     | AUO M150XN07 V2 <sup>(1)</sup> (Tested)                                                               | 1024x768                                 |
| OFF                    | ON     | ON     | OFF    | LG LM151X2                                                                                            | 1024x768                                 |
| ON                     | ON     | OFF    | ON     | Sharp LQ150X1LGB1<br>Sharp LQ150X1LGN2A                                                               | 1024x768<br>1024x768                     |
| ON                     | OFF    | ON     | ON     | NEC NL10276BC12-02                                                                                    | 1024x768                                 |
| OFF                    | ON     | ON     | ON     | NEC NL10276BC13-01C <sup>(1)</sup> (Tested)                                                           | 1024x768                                 |
| ON                     | ON     | ON     | ON     | NEC NL10276BC30-18/ 30-18C <sup>(2)</sup> (Tested)<br>NEC NL10276BC20-08 <sup>(2)</sup> (Tested)      | 1024x768<br>1024x768                     |
| <b>For SVGA panel</b>  |        |        |        |                                                                                                       |                                          |
| OFF                    | OFF    | ON     | OFF    | PrimeView PD104SL5H2 (Tested)<br>Sharp LQ121S1DG11 (Tested)<br>Sharp LQ104S1DG21<br>Sharp LQ121S1DG41 | 800x600<br>800x600<br>800x600<br>800x600 |
| ON                     | OFF    | ON     | OFF    | Toshiba LTM12C289 (Tested)                                                                            | 800x600                                  |
| OFF                    | ON     | ON     | OFF    | Sharp LQ084S3DG01 <sup>(2)</sup> (Tested)                                                             | 800x600                                  |
| ON                     | ON     | OFF    | OFF    | Sharp LQ121S1LG41 (Tested)<br>NEC NL8060BC21-02 <sup>(2)</sup> (Tested)                               | 800x600<br>800x600                       |
| ON                     | ON     | ON     | OFF    | Sharp LQ104S1DG21 <sup>(2)</sup> (Tested)                                                             | 800x600                                  |
| OFF                    | OFF    | OFF    | ON     | PrimeView PD104SL5 <sup>(4)</sup> (Tested)                                                            | 800x600                                  |
| <b>For WVGA panel</b>  |        |        |        |                                                                                                       |                                          |
| ON                     | ON     | OFF    | OFF    | Kyocera TCG085WV1AB (Tested)                                                                          | 800x480                                  |
| ON                     | OFF    | ON     | OFF    | NEC NL8048BC19-02 <sup>(2)</sup> (Tested)                                                             | 800x480                                  |
| ON                     | OFF    | OFF    | ON     | Sharp LQ070Y3LG4A <sup>(3)*</sup> (Tested)                                                            | 800x480                                  |
| <b>For VGA panel</b>   |        |        |        |                                                                                                       |                                          |
| ON                     | OFF    | OFF    | OFF    | Sharp LQ10D368 (Tested)<br>Sharp LQ104V1DG51 (Tested)<br>Sharp LQ104V1DG21                            | 640x480<br>640x480<br>640x480            |
| OFF                    | OFF    | ON     | OFF    | PrimeView PD064VT5 <sup>(1)</sup> (Tested)<br>NEC NL6448BC26-01 <sup>(1)</sup> (Tested)               | 640x480<br>640x480                       |
| OFF                    | ON     | ON     | OFF    | Sharp LQ10D421 <sup>(3)</sup><br>Sharp LQ64D343 <sup>(3)</sup><br>Sharp LQ104V1DG11 <sup>(3)</sup>    | 640x480<br>640x480<br>640x480            |
| ON                     | ON     | ON     | OFF    | LG LP104V2 <sup>(3)</sup>                                                                             | 640x480                                  |
| OFF                    | OFF    | OFF    | ON     | Mitsubishi AA104VB04 <sup>(3)</sup><br>AU Optronics G104VN01 <sup>(3)</sup>                           | 640x480<br>640x480                       |
| <b>Others</b>          |        |        |        |                                                                                                       |                                          |
| ON                     | OFF    | OFF    | OFF    | Sharp LQ150F1LH22 <sup>(2)</sup> (Tested)                                                             | 1400x1050                                |
| ON                     | ON     | OFF    | OFF    | Samsung LTM190M2-L31 <sup>(4)</sup> (Tested)                                                          | 1440x900                                 |
| ON                     | OFF    | ON     | OFF    | LG LM171WX3-TLA1 <sup>(4)</sup> (Tested)                                                              | 1440x900                                 |
| OFF                    | OFF    | ON     | OFF    | CPT CLAA102NA0ACW <sup>(4)</sup> (Tested)                                                             | 1024x600                                 |
| OFF                    | ON     | OFF    | OFF    | Sharp LS037V7DW03 <sup>(2)</sup> (Tested)                                                             | 480x640                                  |

For additional and recent added panels, see DVS-1600 panel support table at <http://www.digitalview.com/controllers/csg.php>

<sup>(1)</sup> Support in V1.06.00 or up firmware version or up only.

<sup>(2)</sup> Support in V1.10.00 or up firmware version or up only.

<sup>(3)</sup> Support in V1.15.00 or up firmware version or up only.

<sup>(4)</sup> Support in V1.18.00 or up firmware version or up only.

\* Support 640x480 input resolution signal only.

| Pos #5 | Pos #6 | Pos #7 | Description |
|--------|--------|--------|-------------|
| OFF    | OFF    | OFF    | WUXGA       |
| ON     | OFF    | OFF    | UXGA        |
| OFF    | ON     | OFF    | SXGA        |
| ON     | ON     | OFF    | WXGA        |
| OFF    | OFF    | ON     | XGA         |
| ON     | OFF    | ON     | SVGA        |
| OFF    | ON     | ON     | VGA / WVGA  |
| ON     | ON     | ON     | Others      |

SW1 Pos 8 = Reserved.

**DIP switch selection – SW2**

| Pos. # | Function                                 | Description                                                                                                                                                 |
|--------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Panel pixel format                       | OFF : Double Pixel<br>ON : Single Pixel                                                                                                                     |
| 2      | LVDS data mapping select                 | ON : Mapping A (LVDS panel)<br>OFF : Mapping B (LVDS panel)<br>Please adjust to get the correct picture. See as Appendix II for details of mapping A and B. |
| 3      | Reserved                                 | ---                                                                                                                                                         |
| 4      | Selection of TTL / LVDS panel connection | ON : LVDS<br>OFF : TTL                                                                                                                                      |

The most current list can be found the controller solution generator at <http://www.digitalview.com/controllers/csg.php>

**CN1 – Panel connector: Hirose, DF13A-40DP-1.25DSA (Matching type : DF13-40DS-1.25C)**

| PIN | SYMBOL         | DESCRIPTION                                             |
|-----|----------------|---------------------------------------------------------|
| 1   | TXA0+          | Positive differential LVDS data bit A0                  |
| 2   | TXA0-          | Negative differential LVDS data bit A0                  |
| 3   | TXA1+          | Positive differential LVDS data bit A1                  |
| 4   | TXA1-          | Negative differential LVDS data bit A1                  |
| 5   | NC             | No connection                                           |
| 6   | NC             | No connection                                           |
| 7   | TXA2+          | Positive differential LVDS data bit A2                  |
| 8   | TXA2-          | Negative differential LVDS data bit A2                  |
| 9   | TXA3+          | Positive differential LVDS data bit A3                  |
| 10  | TXA3-          | Negative differential LVDS data bit A3                  |
| 11  | GND            | Ground                                                  |
| 12  | GND            | Ground                                                  |
| 13  | TXAC+          | Positive LVDS clock for A channel                       |
| 14  | TXAC-          | Negative LVDS clock for A channel                       |
| 15  | GND            | Ground                                                  |
| 16  | GND            | Ground                                                  |
| 17  | TXB0+          | Positive differential LVDS data bit B0                  |
| 18  | TXB0-          | Negative differential LVDS data bit B0                  |
| 19  | TXB1+          | Positive differential LVDS data bit B1                  |
| 20  | TXB1-          | Negative differential LVDS data bit B1                  |
| 21  | NC             | No connection                                           |
| 22  | NC             | No connection                                           |
| 23  | TXB2+          | Positive differential LVDS data bit B2                  |
| 24  | TXB2-          | Negative differential LVDS data bit B2                  |
| 25  | TXB3+          | Positive differential LVDS data bit B3                  |
| 26  | TXB3-          | Negative differential LVDS data bit B3                  |
| 27  | GND            | Ground                                                  |
| 28  | GND            | Ground                                                  |
| 29  | TXBC+          | Positive LVDS clock for B channel                       |
| 30  | TXBC-          | Negative LVDS clock for B channel                       |
| 31  | GND            | Ground                                                  |
| 32  | GND            | Ground                                                  |
| 33  | VDD (3.3V/5V)  | Panel power supply (3.3V/5V) (selected by JA3 & JA6)    |
| 34  | VDD (3.3V/5V)  | Panel power supply (3.3V/5V) (selected by JA3 & JA6)    |
| 35  | VDD (3.3V/5V)  | Panel power supply (3.3V/5V) (selected by JA3 & JA6)    |
| 36  | VDD (3.3V/5V)  | Panel power supply (3.3V/5V) (selected by JA3 & JA6)    |
| 37  | NC             | No connection                                           |
| 38  | VDD (+12V/18V) | Panel power supply (+12V / 18V) (selected by JA3 & JA6) |
| 39  | VDD (+12V/18V) | Panel power supply (+12V / 18V) (selected by JA3 & JA6) |
| 40  | VDD (+12V/18V) | Panel power supply (+12V / 18V) (selected by JA3 & JA6) |

**CN2 – Panel connector: HIROSE DF20G-50DP-1V (Matching type : DF20A-50DS-1C)**

| PIN | SYMBOL | DESCRIPTION   |
|-----|--------|---------------|
| 1   | GND    | Ground        |
| 2   | GND    | Ground        |
| 3   | NC     | No connection |
| 4   | NC     | No connection |
| 5   | RA0    | Data bit R0   |
| 6   | RA1    | Data bit R1   |
| 7   | RA2    | Data bit R2   |
| 8   | RA3    | Data bit R3   |
| 9   | RA4    | Data bit R4   |
| 10  | RA5    | Data bit R5   |
| 11  | RA6    | Data bit R6   |
| 12  | RA7    | Data bit R7   |
| 13  | GND    | Ground        |
| 14  | GND    | Ground        |
| 15  | NC     | No connection |
| 16  | NC     | No connection |
| 17  | GA0    | Data bit G0   |
| 18  | GA1    | Data bit G1   |
| 19  | GA2    | Data bit G2   |
| 20  | GA3    | Data bit G3   |
| 21  | GA4    | Data bit G4   |
| 22  | GA5    | Data bit G5   |
| 23  | GA6    | Data bit G6   |
| 24  | GA7    | Data bit G7   |
| 25  | GND    | Ground        |
| 26  | GND    | Ground        |



|    |           |                                                      |
|----|-----------|------------------------------------------------------|
| 27 | NC        | No connection                                        |
| 28 | NC        | No connection                                        |
| 29 | BA0       | Data bit B0                                          |
| 30 | BA1       | Data bit B1                                          |
| 31 | BA2       | Data bit B2                                          |
| 32 | BA3       | Data bit B3                                          |
| 33 | BA4       | Data bit B4                                          |
| 34 | BA5       | Data bit B5                                          |
| 35 | BA6       | Data bit B6                                          |
| 36 | BA7       | Data bit B7                                          |
| 37 | GND       | Ground                                               |
| 38 | GND       | Ground                                               |
| 39 | VS        | Vertical sync                                        |
| 40 | CLK       | Dot clock                                            |
| 41 | HS        | Horizontal sync                                      |
| 42 | DE        | Display enable                                       |
| 43 | PWR       | Power down control signal (5v TTL)                   |
| 44 | VLCD      | Panel power supply (3,3V/5V) (selected by JA3 & JA6) |
| 45 | VLCD      | Panel power supply (3,3V/5V) (selected by JA3 & JA6) |
| 46 | VLCD      | Panel power supply (3,3V/5V) (selected by JA3 & JA6) |
| 47 | NC        | No connection                                        |
| 48 | VLCD12/18 | +12V/18V panel supply (selected by JA3 & JA6)        |
| 49 | VLCD12/18 | +12V/18V panel supply (selected by JA3 & JA6)        |
| 50 | VLCD12/18 | +12V/18V panel supply (selected by JA3 & JA6)        |

**CNA1 - Auxiliary power output: JST B4B-XH-A (Matching type : XHP-4)**

| PIN | SYMBOL    | DESCRIPTION                          |
|-----|-----------|--------------------------------------|
| 1   | AUX POWER | +12V DC, 500mA max / +24V DC, 3A max |
| 2   | GND       | Ground                               |
| 3   | GND       | Ground                               |
| 4   | AUX 5V    | +5V DC, 500mA max                    |

**CNB1 – Backlight inverter connector: JST B5B-XH-A (Matching type : XHP-5)**

| PIN | SYMBOL  | DESCRIPTION                                          |
|-----|---------|------------------------------------------------------|
| 1   | GND     | Ground                                               |
| 2   | VBKL    | Backlight power supply, +12VDC / +24V DC, 3A max     |
| 3   | BLCTRL  | Backlight On/Off control signal (refer to JB2 & JB3) |
| 4   | BVR_WIP | Backlight brightness VR pin WIP                      |
| 5   | BVR_A   | Backlight brightness VR pin A                        |

**CNB2 – Backlight status connector : JST B2B-XH-A (Matching type : XHP-2)**

| PIN | SYMBOL | DESCRIPTION             |
|-----|--------|-------------------------|
| 1   | BL_S   | Backlight status signal |
| 2   | GND    | Ground                  |

**CNC1 – Control switch, JST B12B-XH-A**

| PIN | SYMBOL   | DESCRIPTION                                                 |
|-----|----------|-------------------------------------------------------------|
| 1   | PSWIN    | Power button A                                              |
| 2   | SW_ON    | Power button B                                              |
| 3   | BVR_A    | Backlight Brightness VR pin A                               |
| 4   | BVR_WIP  | Backlight Brightness R pin WIP                              |
| 5   | BVR_B    | Backlight Brightness VR pin B (470 ohm resistor to +5V Vcc) |
| 6   | GND      | Ground                                                      |
| 7   | MENU     | OSD menu                                                    |
| 8   | -/LEFT   | OSD -/Left                                                  |
| 9   | +/-RIGHT | OSD +/-Right                                                |
| 10  | SEL_DN   | OSD Select down                                             |
| 11  | SEL_UP   | OSD Select up                                               |
| 12  | NC       | No connection                                               |

**CNV1 – Alternate Video in input, JST B5B-PH-K (Matching type : PHR-5)**

| PIN | DESCRIPTION          |
|-----|----------------------|
| 1   | S-Video : Chroma in  |
| 2   | S-Video : Luma in    |
| 3   | Ground               |
| 4   | Ground               |
| 5   | Composite video 1 in |

**LED1 – Controller status LED connector: 3-pin header**

| PIN | DESCRIPTION              |
|-----|--------------------------|
| 1   | Green LED pin (anode)    |
| 2   | LED pin common (cathode) |

|   |                     |
|---|---------------------|
| 3 | Red LED pin (anode) |
|---|---------------------|

#### LED2 – Backlight status LED connector: 3-pin header

| PIN | DESCRIPTION              |
|-----|--------------------------|
| 1   | Green LED pin (anode)    |
| 2   | LED pin common (cathode) |
| 3   | Red LED pin (anode)      |

#### IR1 – Infra-Red sensor connector: JST B3B-XH-A (Matching type : XHP-3) – Support in V1.10.00 or up firmware revision.

| PIN | SYMBOL    | DESCRIPTION      |
|-----|-----------|------------------|
| 1   | GND       | Ground           |
| 2   | STDBY_Vcc | Stand by voltage |
| 3   | IR Data   | IR data          |

#### P1 - Analog VGA input – DB-15 way high density 3 row

| PIN | SYMBOL  | DESCRIPTION                              |
|-----|---------|------------------------------------------|
| 1   | PCR     | Red, analog                              |
| 2   | PCG     | Green, analog                            |
| 3   | PCB     | Blue analog                              |
| 4   | ID2     | Reserved for monitor ID bit 2 (grounded) |
| 5   | DGND    | Digital ground                           |
| 6   | AGND    | Analog ground red                        |
| 7   | AGND    | Analog ground green                      |
| 8   | AGND    | Analog ground blue                       |
| 9   | DDC_5V  | +5V power supply for DDC (optional)      |
| 10  | DGND    | Digital ground                           |
| 11  | ID0     | Reserved for monitor ID bit 0 (grounded) |
| 12  | DDC_SDA | DDC serial data                          |
| 13  | HS_IN   | Horizontal sync or composite sync, input |
| 14  | VS_IN   | Vertical sync, input                     |
| 15  | DDC_SCL | DDC serial clock                         |

#### P2 – DVI-D input

| PIN | SYMBOL      | DESCRIPTION                         |
|-----|-------------|-------------------------------------|
| 1   | /RX2        | TMDS Data 2-                        |
| 2   | RX2         | TMDS Data 2+                        |
| 3   | GND         | Digital Ground                      |
| 4   | NC          | No connection                       |
| 5   | NC          | No connection                       |
| 6   | DVI_DDC_CLK | DDC Clock                           |
| 7   | DVI_DDC_DAT | DDC Data                            |
| 8   | DVI_VS_IN   | Analog vertical Sync                |
| 9   | /RX1        | TMDS Data 1-                        |
| 10  | RX1         | TMDS Data 1+                        |
| 11  | GND         | Digital Ground                      |
| 12  | NC          | No connection                       |
| 13  | NC          | No connection                       |
| 14  | DVI_DDC_5V  | +5V power supply for DDC (optional) |
| 15  | GND         | Ground (+5, Analog H/V Sync)        |
| 16  | NC          | No connection                       |
| 17  | /RX0        | TMDS Data 0-                        |
| 18  | RX0         | TMDS Data 0+                        |
| 19  | GND         | Digital Ground                      |
| 20  | NC          | No connection                       |
| 21  | NC          | No connection                       |
| 22  | GND         | Digital Ground                      |
| 23  | RXC         | TMDS Clock+                         |
| 24  | /RXC        | TMDS Clock-                         |
| 25  | NC          | No connection                       |
| 26  | NC          | No connection                       |

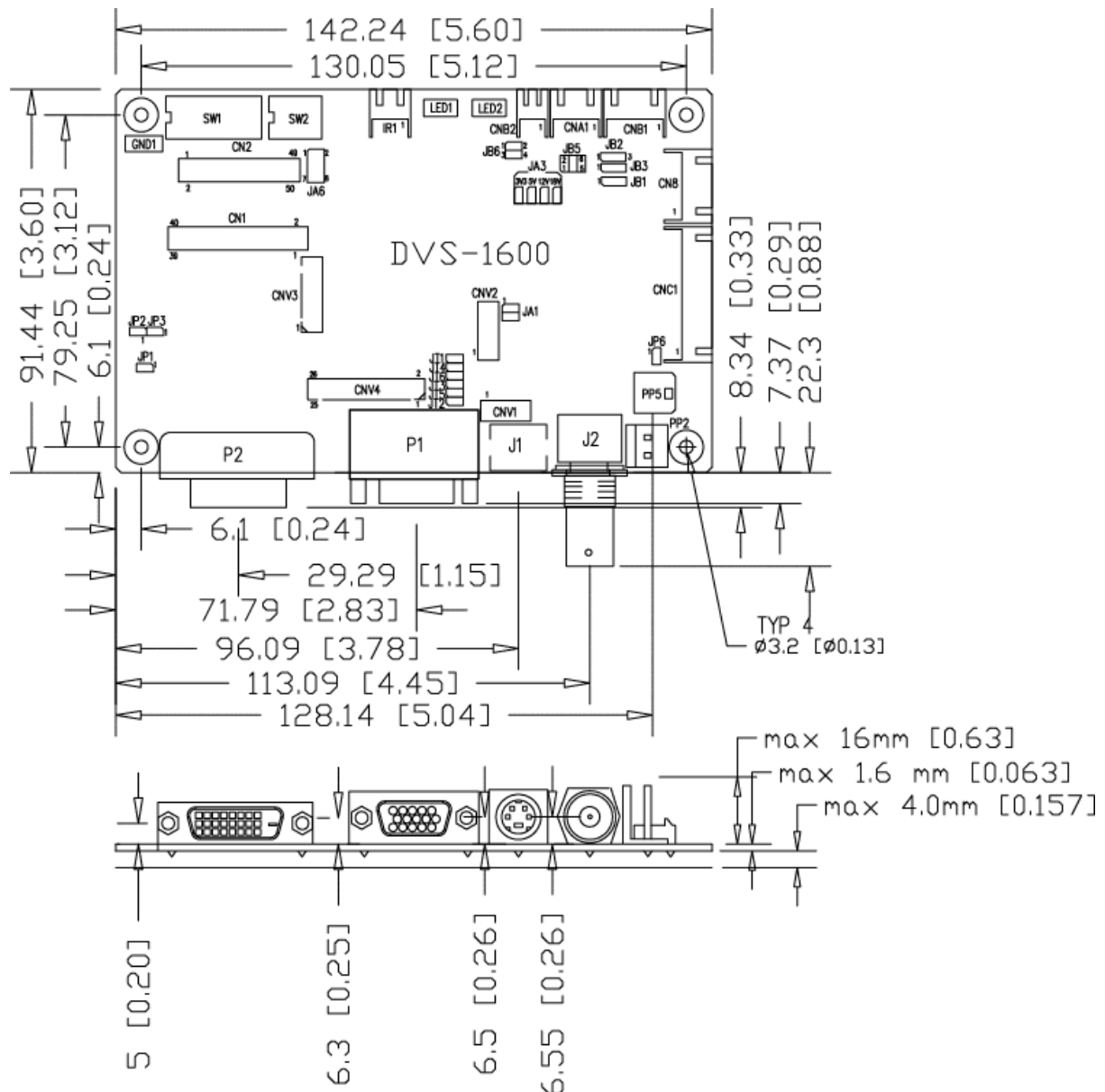
#### PP2 – Alternate 12VDC power supply

| PIN | DESCRIPTION                   |
|-----|-------------------------------|
| 1   | +12VDC 5A max / +24VDC 5A max |
| 2   | Ground                        |

#### PP5 - Power supply

| PIN | DESCRIPTION                   |
|-----|-------------------------------|
| 1   | +12VDC 5A max / +24VDC 5A max |
| 2   | Ground                        |

## CONTROLLER DIMENSIONS



The maximum thickness of the controller is 21.6mm (measured from bottom of PCB to top of components, including any underside components & leads). We recommend clearances of:

- 5mm from bottom of PCB - if mounting on a metal plate we also recommend a layer of suitable insulation material is added to the mounting plate surface.
- 10mm above the components
- 3-5mm around the edges

Any of the holes shown above can be used for mounting the PCB, they are 3.2mm in diameter.

**CAUTION:** Ensure adequate insulation is provided for all areas of the PCB with special attention to high voltage parts such as the inverter.

## APPLICATION NOTES

### USING THE CONTROLLER WITHOUT BUTTONS ATTACHED

This is very straightforward by following the steps below :

- Firstly setup the controller/display system with the buttons. With controls attached and display system active make any settings for colour and image position as required then switch everything off.
- Use a jumper to close JP6 jumper, this will fix the board On.
- Refer to inverter specifications for details as to fixing brightness to a desired level, this may require a resistor, an open circuit or closed circuit depending on inverter.

### INVERTER CONNECTION

There are potentially 3 issues to consider with inverter connection:

- Power
- Enable
- Brightness

Please read the following sections for a guide to these issues.

**Inverter Power:** As per the table for CNB1 pin 1 is ground and pin 2 provides 12V/ 24V DC. This should be matched with the inverter specification: see table.

CNB1

| PIN | DESCRIPTION    |
|-----|----------------|
| 1   | Ground         |
| 2   | +12VDC / 24VDC |

Remark: For higher power inverter, more current (for 12V / 24V) can be taken from CNA1 pin 1. Maximum current drawn on CNA1 pin 1 and CNB1 pin 2 is 3A (24V) / 3A(12V)

**Enable:** This is a pin provided on some inverters for On/Off function and is used by this panel controller for VESA DPMS compliance. If the inverter does not have an enable pin or the enable pin is not used then DPMS will not be operational. Pin 3 should be matched to the inverters specification for the 'enable' or 'disable' pin.

CNB1

| PIN | DESCRIPTION |
|-----|-------------|
| 3   | Enable      |

Further, jumpers JB2 & JB3 should be set to match the inverters specification for the enable pin power and High or Low setting: see table.

| Ref | Purpose                 | Note                                                       |
|-----|-------------------------|------------------------------------------------------------|
| JB2 | Inverter enable voltage | 1-2 H = 12V/24V, 2-3 H = 5V (Vcc), OPEN H = open collector |
| JB3 | Inverter control        | 1-2 H = On, 2-3 L = On                                     |

**Brightness:** There are various methods for brightness control and it is important to consider the specifications for the inverter to be used. Generally the situation is:

- Brightness can controlled by using a resistor or VR (Variable Resistor).
- Brightness controlled by adding a circuit such as PWM (Pulse Width Modulation).
- No adjustment of brightness is possible.

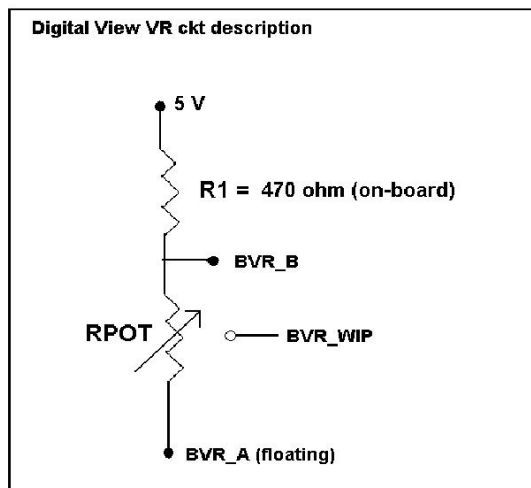
CNB1 pins 4 & 5 are available for connecting to an inverter or circuit where VR control is supported.

CNB1

| PIN | DESCRIPTION |
|-----|-------------|
| 4   | VR WIP      |
| 5   | VR A        |

This can then be matched with function controls (OSD switch mount) pins 3 & 4: see cable design below .

## Design Guideline for making VR circuitry :



### Signal description / Notes :

- 1) R1 : 470ohm on board
- 2) RPOT is an external potentiometer (in-line dip style) that can be plugged directly into CNC1 pins 3,4,5. RPOT must be supplied / installed by user.
- 3) BVR\_B : Voltage tapped from "top" of potentiometer, the node of R1 and RPOT.
- 4) BVR\_WIP : Voltage tapped from wiper arm of RPOT.
- 5) BVR\_A : Voltage tapped from "bottom" of RPOT.

**Note :** BVR\_A voltage is left floating on the controller board. To use this circuit, you need to tie this point to a potential (usually GND, available at CNC1 pin 6).

CNB1 – Backlight inverter connector: JST B5B-XH-A (Matching type : XHP-5)

| PIN | SYMBOL  | DESCRIPTION                                                    |
|-----|---------|----------------------------------------------------------------|
| 1   | GND     | Ground                                                         |
| 2   | VBKL    | +12VDC / 24VDC, backlight power supply (selected by JA3 & JA6) |
| 3   | BLCTRL  | On/Off control (enable) – see JB2 & JB3                        |
| 4   | BVR_WIP | Brightness VR - WIP                                            |
| 5   | BVR_A   | Brightness VR A                                                |

CNC1 – Control switch, JST B12B-XH-A (Matching type : XHP-12)

| PIN | SYMBOL   | DESCRIPTION                                                 |
|-----|----------|-------------------------------------------------------------|
| 1   | PSWIN    | Power button A                                              |
| 2   | SW_ON    | Power button B                                              |
| 3   | BVR_A    | Backlight Brightness VR pin A                               |
| 4   | BVR_WIP  | Backlight Brightness R pin WIP                              |
| 5   | BVR_B    | Backlight Brightness VR pin B (470 ohm resistor to +5V Vcc) |
| 6   | GND      | Ground                                                      |
| 7   | MENU     | OSD menu                                                    |
| 8   | -/LEFT   | OSD -/Left                                                  |
| 9   | + /RIGHT | OSD +/Right                                                 |
| 10  | SEL_DN   | OSD Select down                                             |
| 11  | SEL_UP   | OSD Select up                                               |
| 12  | NC       | No connection                                               |

The VR for brightness depends on the inverter. The main power load for On/Off is handled by a relay on the controller.

### Example for circuit design :

- 1.) Choose RPOT = 10K
- 2.) Tie BVR\_A to GND
- 3.) Circuit analysis gives BVR\_WIP as the following (see Figure 1)

$$BVR\_WIP = 5 \times (R_{bc}/10.47)$$

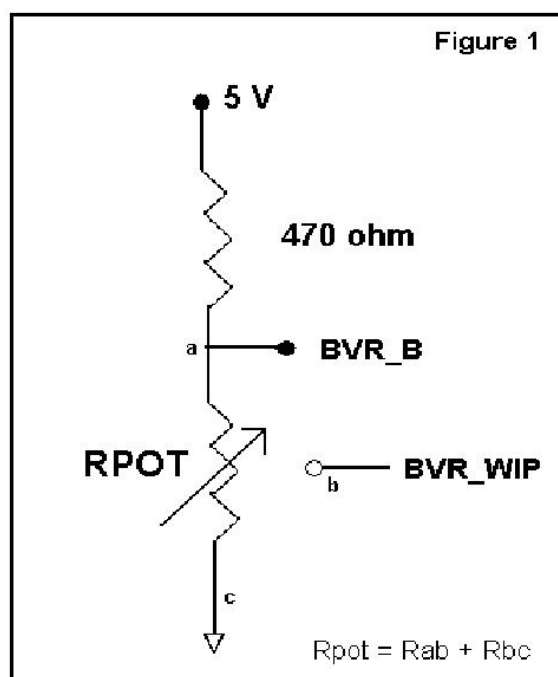
where BVR\_WIP is in Volts.

And Rbc is the resistance from the wiper arm to bottom of pot in Kohms.

To evaluate, plug in different values of Rbc :

| Rbc   | BVR_WIP |
|-------|---------|
| 0     | 0 V     |
| 2.5 K | 1.2 V   |
| 5 K   | 2.4 V   |
| 7.5 K | 3.6 V   |
| 10 K  | 4.8 V   |

So this circuit could provide Brightness adjust voltage ranging from 0V to 5V.



---

## TROUBLESHOOTING

### General

A general guide to troubleshooting a flat panel display system it is worth considering the system as separate elements, such as:

- Controller (jumpers, PC settings)
- Panel (controller, cabling, connection, panel, PC settings)
- Backlight (inverter, cabling, backlight tubes)
- Cabling
- Computer system (display settings, operating system)

Through step by step cross checking with instruction manuals and a process of elimination to isolate the problem it is usually possible to clearly identify the problem area.

### No image:

- If the panel backlight is not working it may still be possible to just see some image on the display.
- A lack of image is most likely to be caused by incorrect connection, lack of power, failure to provide a signal or incorrect graphic card settings.

### Image position:

If it is impossible to position the image correctly, ie the image adjustment controls will not move the image far enough, then test using another graphics card. This situation can occur with a custom graphics card that is not close to standard timings or if something is in the graphics line that may be affecting the signal such as a signal splitter (please note that normally a signal splitter will not have any adverse effect).

### Image appearance:

- A faulty panel can have blank lines, failed sections, flickering or flashing display
- Incorrect graphics card refresh rate, resolution or interlaced mode will probably cause the image to be the wrong size, to scroll, flicker badly or possibly even no image.
- Incorrect jumper settings on the controller may cause everything from total failure to incorrect image. CAUTION: Do not set the panel power input incorrectly.
- Sparkling on the display: faulty panel signal cable.

### Backlight:

Items to check include: Power input, Controls, Inverter and Tubes generally in this order.

If half the screen is dimmer than the other half:

- Check cabling for the inverter.
- For a specific backlight tube check the AC pins orientation (CAUTION: Never reverse any DC power pins).

Also:

- If adjusting brightness control has no effect the chances are that the VR rating or method of adjusting brightness is not compatible or correctly connected to the inverter.
- If system does not power down when there is a loss of signal

### Continued failure:

If unit after unit keeps failing consider and investigate whether you are short circuiting the equipment or doing something else seriously wrong.

Generally after common sense issues have been resolved we recommend step by step substitution of known working parts to isolate the problem.

## SPECIFICATIONS

|                              |                                                                                                                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Panel compatibility          | 1680x1050, 1600x1200, 1400x1050, 1440x900 1366x768, 1280x1024, 1280x800, 1280x768, 1024x768, 1024x600, 800x600, 800x480, 640x480, 480x640 TFT LVDS or TTL single pixel LCD's support.           |
| No. of colours               | Up to 3 x 8 bit providing 16.7 million colours.                                                                                                                                                 |
| Vertical refresh rate        | UXGA, SXGA, XGA, SVGA, VGA resolution up to 60Hz.                                                                                                                                               |
| Graphics formats             | Standard UXGA, SXGA, XGA, SVGA, VGA                                                                                                                                                             |
| Video formats                | PAL, PAL M, NTSC, NTSC 4.43 & SECAM                                                                                                                                                             |
| Standard input at source     | - VGA analog (15-pin) standard with automatic detection of :<br>Digital Separate Sync<br>Sync-On-Green<br>Composite Sync<br>- DVI-D                                                             |
| Controls available           | - On/Off<br>- Brightness (inverter)<br>- OSD menu,<br>- OSD select<br>- OSD setting +<br>- OSD setting -                                                                                        |
| Control interface            | - Buttons, RS-232, IR remote control <sup>###</sup>                                                                                                                                             |
| Settings memory              | Settings are stored in non volatile memory                                                                                                                                                      |
| Language OSD support         | Graphics OSD icons                                                                                                                                                                              |
| VESA DPMS implementation     | Yes                                                                                                                                                                                             |
| Plug & Play                  | VESA DDC 1, 2/b compatible                                                                                                                                                                      |
| Voltage output for LCD       | +3.3V , +5V, +12V, +18V<br>The current drawn for 18V panel from 24VDC power input is limited to 2A.<br>The current drawn for 3.3V, 5V or 12V panel from 12V/24VDC power input is limited to 3A. |
| Input voltage                | 12VDC , 5A max / 24VDC 5A max +/- 5%                                                                                                                                                            |
| Controller power consumption | Approx 4W (controller logic only, no panel and inverter are involved)                                                                                                                           |
| Controller dimensions        | 142mm x 92mm x 21.6mm                                                                                                                                                                           |
| Storage temperature limits   | -40°C to +70°C                                                                                                                                                                                  |
| Operating temperature limits | 0°C to +60°C                                                                                                                                                                                    |

<sup>###</sup> - Support on V1.10.00 or up firmware revision.

### NOTES

Please note the following:

- For specific panel setup a sample of an LCD may be required (this will be returned) and a copy of the full technical specifications for the panel from the manufacturer.
- Relayout and custom development services are available.

## Appendix I – Graphic & Video Mode Support Table

| Mode  | Resolution        | Clk [MHz] | Horizontal freq [KHz] | Vertical freq [Hz] | Sync Mode             |
|-------|-------------------|-----------|-----------------------|--------------------|-----------------------|
| E1_70 | 640x350<br>70Hz   | 25.175    | 31.469                | 70.087             | Digital Separate Sync |
| E2_70 | 640x400<br>70Hz   | 25.175    | 31.469                | 70.087             | Digital Separate Sync |
| V_60  | 640x480<br>60Hz   | 25.175    | 31.469                | 59.940             | Digital Separate Sync |
| V_60  | 640x480<br>60Hz   | 25.175    | 31.469                | 59.940             | Sync On Green         |
| V_60  | 640x480<br>60Hz   | 25.175    | 31.469                | 59.940             | Composite Sync        |
| SV_56 | 800x600<br>56Hz   | 36.000    | 35.156                | 56.250             | Digital Separate Sync |
| SV_56 | 800x600<br>56Hz   | 36.000    | 35.156                | 56.250             | Sync On Green         |
| SV_56 | 800x600<br>56Hz   | 36.000    | 35.156                | 56.250             | Composite Sync        |
| SV_60 | 800x600<br>60Hz   | 40.000    | 37.879                | 60.317             | Digital Separate Sync |
| SV_60 | 800x600<br>60Hz   | 40.000    | 37.879                | 60.317             | Sync On Green         |
| SV_60 | 800x600<br>60Hz   | 40.000    | 37.879                | 60.317             | Composite Sync        |
| X_60  | 1024x768<br>60Hz  | 65.000    | 48.363                | 60.004             | Digital Separate Sync |
| X_60  | 1024x768<br>60Hz  | 65.000    | 48.363                | 60.004             | Sync On Green         |
| X_60  | 1024x768<br>60Hz  | 65.000    | 48.363                | 60.004             | Composite Sync        |
| SX_60 | 1280x1024<br>60Hz | 108       | 63.81                 | 60.020             | Digital Separate Sync |
| SX_60 | 1280x1024<br>60Hz | 108       | 63.81                 | 60.020             | Sync On Green         |
| SX_60 | 1280x1024<br>60Hz | 108       | 63.81                 | 60.020             | Composite Sync        |
| UX_60 | 1600x1200<br>60Hz | 162       | 75.000                | 60                 | Digital Separate Sync |
| UX_60 | 1600x1200<br>60Hz | 162       | 75.000                | 60                 | Sync On Green         |
| UX_60 | 1600x1200<br>60Hz | 162       | 75.000                | 60                 | Composite Sync        |

**Remark :**

The controller has been designed to take a very wide range of input signals however to optimize the PC's graphics performance we recommend choosing 60Hz vertical refresh rate. To support on higher refresh rate over 60Hz, the LCD panel may not support.



**COMPOSITE, S-VIDEO INPUT PORT :**

| System    | Resolution | Horizontal freq<br>[KHz] | Vertical freq<br>[Hz] |
|-----------|------------|--------------------------|-----------------------|
| NTSC      | 720x480    | 15.7                     | 60                    |
| NTSC 4.43 | 720x480    | 15.7                     | 60                    |
| PAL       | 720x576    | 15.6                     | 50                    |
| PAL M     | 720x576    | 15.6                     | 60                    |
| SECAM     | 720x576    | 15.6                     | 50                    |

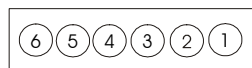
## Appendix II – RS-232 control protocols

### RS-232 Serial control (Baud rate 2400, 8 bits, 1 stop bit and no parity)

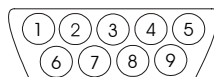
Physical connection :

Controller side  
Connector interface : CN8  
Mating connector : JST XHP-6

Computer side  
Connector interface : Serial port  
Mating connector : DB9 Female



Mating face of CN8



Mating face of RS-232 DB9 Male

| PIN# | Description    |
|------|----------------|
| 4    | RS-232 Tx Data |
| 5    | Ground         |
| 6    | RS-232 Rx Data |

| PIN# | Description    |
|------|----------------|
| 2    | RS-232 Rx Data |
| 3    | RS-232 Tx Data |
| 5    | Ground         |

Remark :

(1) : RS-232 connection cable, 600mm P/N 4260902-00 can be ordered separately for connection.

Software connection :

The OSD function can be controlled through sending the RS-232 protocol.

The RS-232 program can be custom-made to fit for application or it can be used the program provided by Digitalview on request. Please contact your local sales for informations.

### 1. Commands to implement switch mount control buttons

| Function           | Command | Description                | Acknowledge (if enabled) |
|--------------------|---------|----------------------------|--------------------------|
| Menu               | 0xf7    | Menu button pressed        | Button equivalent        |
| Select-down button | 0xfa    | Select down button pressed | Button equivalent        |
| Select-up button   | 0xfb    | Select up button pressed   | Button equivalent        |
| Right/+ button     | 0xfc    | Right/+button pressed      | Button equivalent        |
| Left/- button      | 0xfd    | Left/- button pressed      | Button equivalent        |

### 2. Parameter setting - immediate, relative, reset and query

| Function                      | Command                                                    | Description                                                       | Acknowledge (if enabled)                                                   |
|-------------------------------|------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------|
| Brightness control            | 0x81,<br>nn   "+"   "-"  <br>"r"   "R"  <br>"?"            | Set brightness =<br>value/increment/decrement<br>Reset<br>Query   | Brightness.<br><br>Range: "0"0"-F"F"<br>Default: "8"0"                     |
| Contrast control              | 0x82, "a"   "A",<br>nn   "+"   "-"  <br>"r"   "R"  <br>"?" | Set all contrast =<br>value/increment/decrement<br>Reset<br>Query | Contrast.<br><br>Range: "4"0"-F"F"<br>Default: "8"0"                       |
| Saturation <sup>##</sup>      | 0x83,<br>nn   "+"   "-"   "r"   "R"<br> <br>"?"            | Set saturation=<br>value/increment/decrement<br>Reset<br>Query    | Saturation (In video mode only)<br><br>Range: "0"0"-7"F"<br>Default: "4"0" |
| Hue <sup>##</sup>             | 0x84,<br>nn   "+"   "-"   "r"   "R"<br> <br>"?"            | Set hue=<br>value/increment/decrement<br>Reset<br>Query           | Hue (In video mode only)<br><br>Range: "0"0"-F"F"<br>Default: "8"0"        |
| Phase <sup>#</sup>            | 0x85,<br>nn   "+"   "-"  <br>"?"                           | Set dot clock phase =<br>value/increment/decrement<br>Query       | Dot clock phase.<br>(In ARGB mode only)                                    |
| Image H position <sup>#</sup> | 0x86,<br>nnnn   "+"   "-"  <br>"?"                         | Set img_hpos =<br>value/increment/decrement<br>Query              | Image horizontal position.<br>(In ARGB mode only)                          |

|                                                           |                                                              |                                                                                                                    |                                                                                                                                                                                                                   |
|-----------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Image V position <sup>#</sup>                             | 0x87,<br>nnnn   "+"   "-"  <br>"?"                           | Set img_vpos =<br>value/increment/decrement<br>Query                                                               | Image vertical position.<br>(In ARGB mode only)                                                                                                                                                                   |
| Sharpness                                                 | 0x8a,<br>nn   "+"   "-"   "r"   "R"<br> <br>"?"              | Set sharpness=<br>value/increment/decrement<br>Reset<br>Query                                                      | Sharpness<br><br>Range: "0"0"-3"0"<br>Default: "0"6"                                                                                                                                                              |
| Frequency <sup>#</sup>                                    | 0x8b,<br>nnnn   "+"   "-"  <br>"?"                           | Frequency =<br>value/increment/decrement<br>Query                                                                  | Frequency adjustment<br>(In ARGB mode only)                                                                                                                                                                       |
| OSD H position                                            | 0x90,<br>nnn   "+"   "-"   "r"  <br>"R"   "?"                | Set osd_hpos =<br>value/increment/decrement<br>Reset<br>Query                                                      | OSD horizontal position<br><br>Range: "0"0"0"-3"E"8"<br>Default: "1"F"4"                                                                                                                                          |
| OSD V position                                            | 0x91,<br>nnn   "+"   "-"   "r"  <br>"R"   "?"                | Set osd_vpos =<br>value/increment/decrement<br>Reset<br>Query                                                      | OSD vertical position<br><br>Range: "0"0"0"-3"E"8"<br>Default: "1"F"4"                                                                                                                                            |
| Select menu<br>timeout                                    | 0x93,<br>nn   "+"   "-"   "r"  <br>"R"   "?"                 | Select menu timeout =<br>value/increment/decrement<br>Reset<br>Query                                               | OSD menu timeout value.<br>"00" – Continuous.<br>Value – Round up to nearest<br>available step.<br>If value > max available step, set<br>it to the max available step.<br><br>Range: "0"0"-3"C"<br>Default: "0"A" |
| Input main select<br><br>* Function in Valid<br>mode only | 0x98,<br>nn   "+"   "-"   "r"  <br>"R"   "?"                 | Select input main =<br>PC or video or next available<br>Reset<br>Query                                             | Main selected.<br>"0x41,0x31" ARGB (Default)<br>"0x42,0x31" Composite<br>"0x43,0x31" S-video<br>"0x46,0x31" DVI                                                                                                   |
| Video System <sup>##</sup>                                | 0x9b,<br>"0"   "1"   "2"   "3"  <br>"4"   "r"   "R"  <br>"?" | Set video system =<br>Auto/NTSC/PAL/SECAM<br>Reset<br>Query                                                        | Video State Query:<br>"0" – Auto. (Default)<br>"1" – PAL<br>"2" – PAL_M<br>"3" – NTSC<br>"4" – NTSC_443<br>"5" – SECAM                                                                                            |
| GAMMA value<br>select                                     | 0x9d,<br>n  <br>"r"   "R"  <br>"?"                           | Select GAMMA value =<br>Value<br>Reset<br>Query                                                                    | GAMMA value:<br>"0" – 0.4,<br>"1" – 0.6<br>"2" – 1.0 (Default),<br>"3" – 1.6<br>"4" – 2.2                                                                                                                         |
| Colour<br>temperature select                              | 0xb3,<br>n  <br>"r"   "R"  <br>"?"                           | Select colour temperature =<br>value<br>Reset<br>Query                                                             | Main selected.<br>"0" – user defined RGB values.<br>"1" – 4200K.<br>"2" – 5000K.<br>"3" – 6500K.<br>"4" – 7500K. (Default)<br>"5" – 9300K.                                                                        |
| Red level for<br>selected colour<br>temperature           | 0xb4,<br><br>nn   "+"   "-"  <br>"r"   "R"  <br>"?"          | Set the level of the red channel<br>for the selected colour temp. =<br>value/increment/decrement<br>Reset<br>Query | Red level for selected colour<br>temperature.<br><br>Range: "8"0"-F"F"<br>Default: "F"F"                                                                                                                          |
| Green level for<br>selected colour<br>temperature         | 0xb5,<br><br>nn   "+"   "-"  <br>"r"   "R"  <br>"?"          | Set the level of the green<br>channel for the selected colour<br>temp. =<br>value/increment/decrement<br>Reset     | Green level for selected colour<br>temperature.<br><br>Range: "8"0"-F"F"<br>Default: "F"F"                                                                                                                        |

|                                            |                                                            |                                                                                                                   |                                                                                                                                                                                                                                                                       |
|--------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            |                                                            | Query                                                                                                             |                                                                                                                                                                                                                                                                       |
| Blue level for selected colour temperature | 0xb6,<br>nn   "+"   "-"  <br>"r"   "R"  <br>"?"            | Set the level of the blue channel for the selected colour temp. = value/increment/decrement<br>Reset<br>Query     | Blue level for selected colour temperature.<br><br>Range: "8""0"- "F""F"<br>Default: "F""F"                                                                                                                                                                           |
| Backlight brightness control               | 0xe0,<br>nn   "+"   "-"  <br>"r"   "R"  <br>"?"            | Set backlight brightness = value/increment/decrement<br>Reset<br>Query                                            | Backlight brightness.<br><br>Range: "0""0"- "F""F"<br>Default: "F""F"<br><br>e.g "1""0" → 0xe0 0x31 0x30<br>* This control can only function when JB5 sets 3-4 closed<br><br>* Apply for inverter control voltage in range of 0~5V.<br><br>Each step interval is in 1 |
| Backlight on/off control                   | 0xe1,<br>"0"  <br>"1"  <br>"r"   "R"  <br>"?"<br>"s"   "S" | Set backlight brightness =<br>Disable backlight<br>Enable backlight<br>Reset<br>Query<br>Backlight working status | Backlight on/off.<br><br>"1" = normal (Default)                                                                                                                                                                                                                       |
| OSD menu lock                              | 0xf6,<br>n   "0"   "1"  <br>"r"   "R"  <br>"?"             | OSD menu lock Off/ On<br>Reset<br>Query                                                                           | "0" – OSD menu lock Off<br>"1" – OSD menu lock On                                                                                                                                                                                                                     |

# - Function in ARGB mode only

## - Function in Video mode only

### 3. Other control

| Function                                | Command                                              | Description                                          | Acknowledge (if enabled)                                                       |
|-----------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------|
| Select RS-232 acknowledge               | 0xc1, "0"   "1"                                      | Disable/enable command acknowledge.                  | "0" – acknowledge disabled.<br>"1" – acknowledge enabled.                      |
| Auto-setup <sup>#</sup>                 | 0xc3                                                 | Start auto-setup of current vmode.                   | "0" – fail.<br>"1" – successful.                                               |
| Command availability                    | 0xc4, n                                              | Check whether a command is available.                | "0" – not available.<br>"1" – available.                                       |
| Auto-calibration <sup>#</sup>           | 0xc5                                                 | Start auto-calibration of gain of the RGB amplifier. | "0" – fail.<br>"1" – successful.                                               |
| Query BIOS version                      | 0xcb, "0"                                            | Read BIOS version                                    | "nnnn" = BIOS ver. "nn.nn"                                                     |
| Query PCBA number                       | 0xcb, "1"                                            | Read PCBA number                                     | "nnnn" = PCBA number<br>DVS-1600="41714"                                       |
| Load factory defaults                   | 0xce                                                 | Reset all parameters to factory default value        | "1" – successful.                                                              |
| Wide Screen Mode Selection <sup>#</sup> | 0xd9,<br>"0"   "1"   "2"   "3"<br>"r"   "R"  <br>"?" | Wide Screen Mode<br>Reset<br>Query                   | "0" – 1280x768 (Default)<br>"1" – 1360x768<br>"2" – 1366x768<br>"3" – 1368x768 |

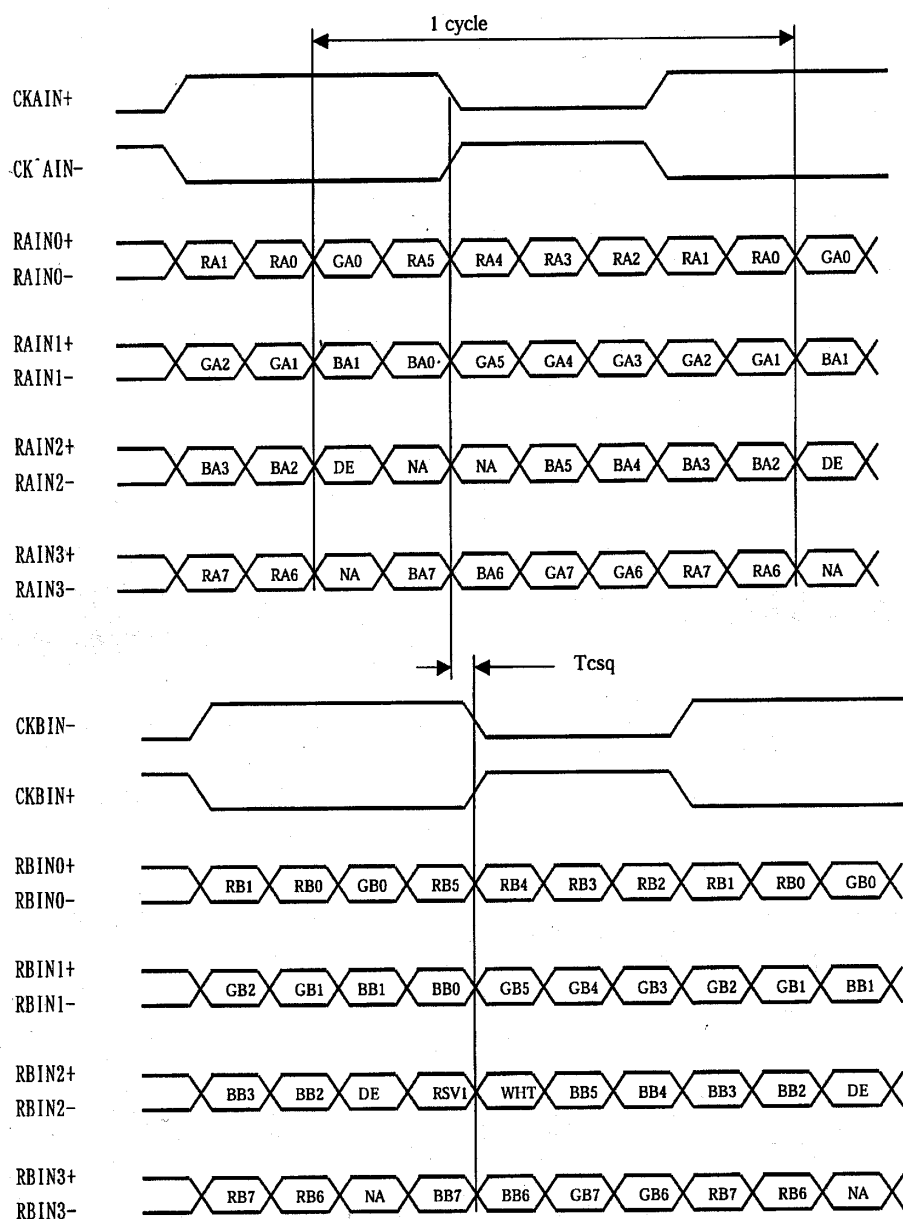
# - Function in ARGB mode only

## Hex to ASCII conversion table

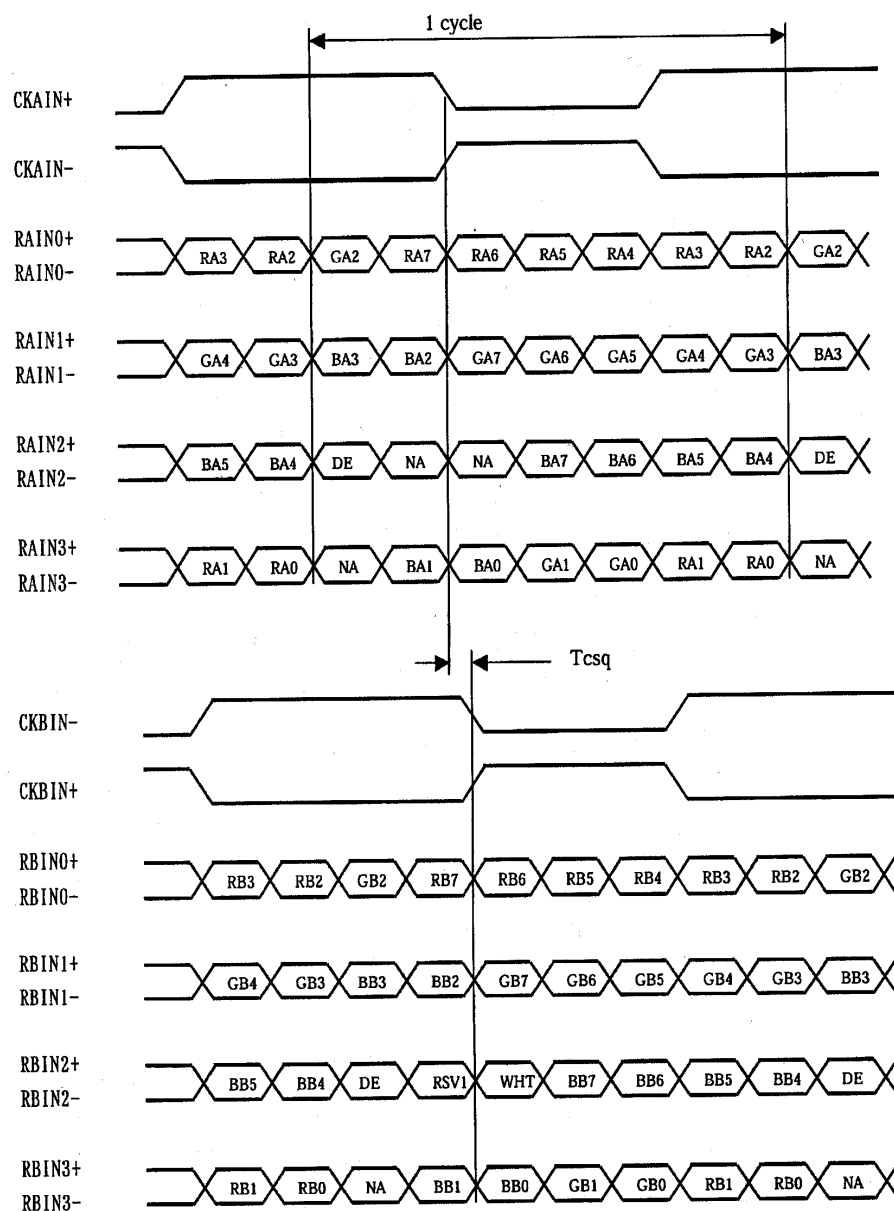
| Hex  | ASCII | Hex  | ASCII | Hex  | ASCII | Hex  | ASCII |
|------|-------|------|-------|------|-------|------|-------|
| 0x30 | 0     | 0x41 | A     | 0x61 | a     | 0x2B | +     |
| 0x31 | 1     | 0x42 | B     | 0x62 | b     | 0x2D | -     |
| 0x32 | 2     | 0x43 | C     | 0x63 | c     | 0x3F | ?     |
| 0x33 | 3     | 0x44 | D     | 0x64 | d     |      |       |
| 0x34 | 4     | 0x45 | E     | 0x65 | e     |      |       |
| 0x35 | 5     | 0x46 | F     | 0x66 | f     |      |       |
| 0x36 | 6     | 0x47 | G     | 0x67 | g     |      |       |
| 0x37 | 7     | 0x48 | H     | 0x68 | h     |      |       |
| 0x38 | 8     | 0x49 | I     | 0x69 | i     |      |       |
| 0x39 | 9     | 0x4A | J     | 0x6A | j     |      |       |
|      |       | 0x4B | K     | 0x6B | k     |      |       |
|      |       | 0x4C | L     | 0x6C | l     |      |       |
|      |       | 0x4D | M     | 0x6D | m     |      |       |
|      |       | 0x4E | N     | 0x6E | n     |      |       |
|      |       | 0x4F | O     | 0x6F | o     |      |       |
|      |       | 0x50 | P     | 0x70 | p     |      |       |
|      |       | 0x51 | Q     | 0x71 | q     |      |       |
|      |       | 0x52 | R     | 0x72 | r     |      |       |
|      |       | 0x53 | S     | 0x73 | s     |      |       |
|      |       | 0x54 | T     | 0x74 | t     |      |       |
|      |       | 0x55 | U     | 0x75 | u     |      |       |
|      |       | 0x56 | V     | 0x76 | v     |      |       |
|      |       | 0x57 | W     | 0x77 | w     |      |       |
|      |       | 0x58 | X     | 0x78 | x     |      |       |
|      |       | 0x59 | Y     | 0x79 | y     |      |       |
|      |       | 0x5A | Z     | 0x7A | z     |      |       |

## Appendix III – Mapping definition

- Definition of Mapping A :



- Definition of Mapping B :



---

## Appendix IV – Auto Color Gain

The Auto Color Gain function is supported in the ARGB mode only and is designed to calibrate the controller to the incoming video signal. In order to calibrate correctly, the display must be displaying an image containing both black and white data (see illustration below) when the function is used. The internal processor of the video controller chip will then execute a process to adjust the relative values of the RGB signals to achieve the best performance. The parameters of the corrected RGB values are then stored in the controller and are unaffected by the Reset Factory Defaults function.



**Warning** - If the Auto Color Gain is executed without an appropriate image being displayed, then the process will set incorrect values and the display colors will be distorted. If this occurs, then it can either be corrected by performing the process correctly or if this is not possible then the Reset Color Gain function can be used. This function will reset the stored RGB values to a set of approximate values.

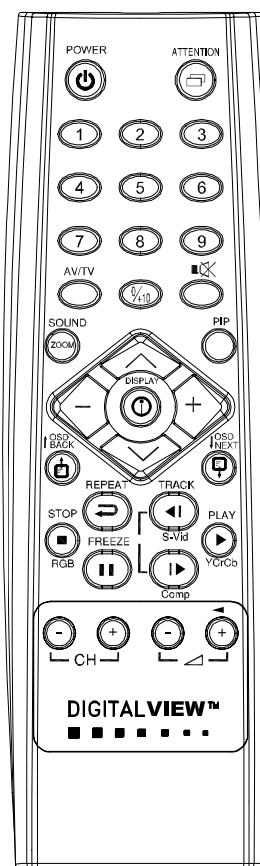


## Appendix V – DV remote control unit work for DVS-1600

### 9-2. Key Arrangement ( Key No. )

**P/N 559000104-3 :**  
DigitalView remote control unit  
(without DV logo silk screen  
printing)

**P/N 559000103-3 :**  
DigitalView remote control unit  
(with DigitalView logo silk  
screen printing)



| BUTTON                  | FUNCTION                                                                                                                                              |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| POWER BUTTON            | Soft power ON/OFF button.                                                                                                                             |
| ATTENTION BUTTON**      | Use combined with digit keys to enable/disable the IR function.<br>DVS-1600 : "Attention" + "1"                                                       |
| SEL UP (▲) / SEL DN (▼) | Press this button to select the items in the OSD menu.                                                                                                |
| + / - BUTTON            | Use "+" button to direct control the hotkey function for switching to next input source.<br>In OSD menu, pressing this button to adjust the settings. |
| DISPLAY BUTTON          | Activate the OSD menu display on screen.                                                                                                              |
| STOP (RGB) BUTTON       | In input source selection mode, pressing this button to select RGB source.                                                                            |
| TRACK (S-Vid) BUTTON    | In input source selection mode, pressing this button to select S-Video source.                                                                        |
| TRACK (Comp) BUTTON     | In input source selection mode, pressing this button to select Composite source.                                                                      |

\*\* Support in V1.18.00 or up firmware version or up only.

---

## **WARRANTY**

The products are warranted against defects in workmanship and material for a period of three (3) year from the date of purchase provided no modifications are made to it and it is operated under normal conditions and in compliance with the instruction manual.

The warranty does not apply to:

- Product that has been installed incorrectly, this specifically includes but is not limited to cases where electrical short circuit is caused.
- Product that has been altered or repaired except by the manufacturer (or with the manufacturer's consent).
- Product that has subjected to misuse, accidents, abuse, negligence or unusual stress whether physical or electrical.
- Ordinary wear and tear.

Except for the above express warranties, the manufacturer disclaims all warranties on products furnished hereunder, including all implied warranties of merchantability and fitness for a particular application or purpose. The stated express warranties are in lieu of all obligations or liabilities on the part of the manufacturer for damages, including but not limited to special, indirect consequential damages arising out of or in connection with the use of or performance of the products.

---

## **CAUTION**

Whilst care has been taken to provide as much detail as possible for use of this product it cannot be relied upon as an exhaustive source of information. This product is for use by suitably qualified persons who understand the nature of the work they are doing and are able to take suitable precautions and design and produce a product that is safe and meets regulatory requirements.

---

## **LIMITATION OF LIABILITY**

The manufacturer's liability for damages to customer or others resulting from the use of any product supplied hereunder shall in no event exceed the purchase price of said product.

---

## **TRADEMARKS**

The following are trademarks of Digital View Ltd:

- Digital View
- DVS-1600

---

## CONTACT DETAILS

**USA:** Digital View Inc.  
18440 Technology Drive  
Building 130  
Morgan Hill, CA 95037  
USA

**Tel:** (1) 408-782 7773      **Fax:** (1) 408-782 7883  
**Sales:** [ussales@digitalview.com](mailto:ussales@digitalview.com)

**EUROPE:** Digital View Ltd  
6 Marylebone Passage  
London  
W1W 8EX  
UK

**Tel:** (44) (0)20 7631 2150      **Fax:** (44) (0)20 7631 2156  
**Sales:** [uksales@digitalview.com](mailto:uksales@digitalview.com)

**ASIA:** Digital View Ltd  
16<sup>th</sup> floor Millennium City 3  
370 Kwun Tong Road  
Kwun Tong  
Hong Kong

**Tel:** (852) 2861 3615      **Fax:** (852) 2520 2987  
**Sales:** [hksales@digitalview.com](mailto:hksales@digitalview.com)

## WEBSITE

[www.digitalview.com](http://www.digitalview.com)

Brand names belong to their respective owners.  
Specifications subject to change without notice.

11th issue: 1 June, 2010 (DVS-1600 –2x manual.doc)

© Digital View Ltd 2007-2010

# Artisan Technology Group is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at [artisanng.com](https://www.artisanng.com) for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

**We're here to make your life easier. How can we help you today?**

(217) 352-9330 | [sales@artisanng.com](mailto:sales@artisanng.com) | [artisanng.com](https://www.artisanng.com)

