Digital View

DVI INTERFACE CONTROLLER
FOR 1280 x 1024, 1024 x 768, 800 x 600, 640 x 480 RESOLUTIONS
TFT LCD

Model: DVI-1280

(Part number: 416660X-10)

INSTRUCTIONS

(Preliminary)

powering up this controller.

Introduction

Designed for LCD monitor and other flat panel display applications the DVI-1280 controller provides an auto-input synchronization and easy to use interface controller for:

- **TFT (active matrix) LCD panels of 1280x1024, 1024x768, 800x600 and 640x480 resolutions;**
- **Computer video signals of VGA, SVGA, XGA and SXGA 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 & functions

IMPORTANT USAGE NOTE

This equipment is for use by 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:

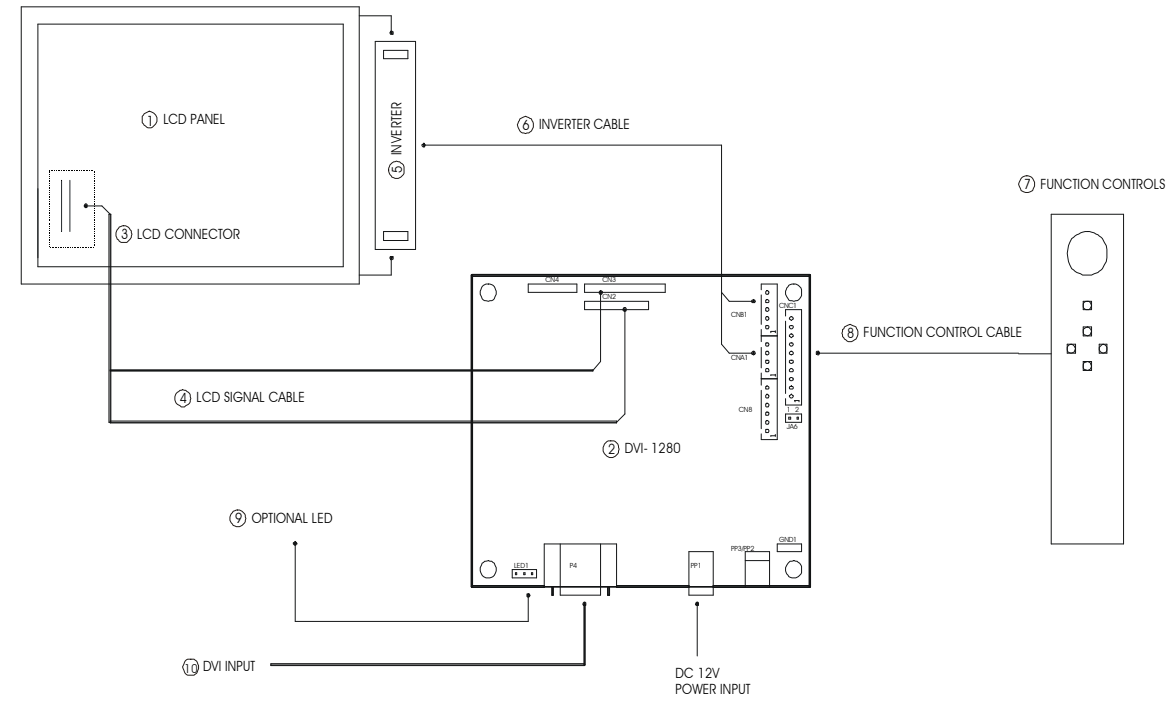
- Ensure that all necessary and appropriate safety measures are taken.
- Obtain suitable regulatory approvals as may be required.
- **Check power settings to all component parts before connection.**

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. DVI controller card, DVI-1280
3. LCD panel connector board for LCD signal cable (if necessary)
4. LCD signal cables
5. Inverter for backlight (if not built into LCD)
6. Inverter cable
7. Function controls
8. Function controls cable
9. Status LED
10. External type DVI cable

- Power supply
- Enclosure or Mounting (not shown)

Digital View provides a range of parts, such as listed above, to make up complete display solutions.

ASSEMBLY NOTES

This controller is designed for monitor and custom display projects using 1280 x 1024, 1024 x 768, 800x600 or 640x480 resolution TFT panels with a VGA, SVGA, XGA or SXGA 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 labeled. Guides to connectors and mounting holes are shown in the following relevant sections.

- **LCD Panel**: This controller is for TFT panels with 3.3V, 5V or 12V TTL or LVDS/TMDS interface. For LVDS/TMDS a separate add-on board is required. Due to the variation between manufacturers 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)**

- **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.

- **LCD connector board**: Different makes and models of LCD panel require different panel signal connectors and different pin assignments.

  WIRING NOTE: If panels of less than 3 x 8 bit are used, e.g. 3 x 6 bit, then connection of panel signal high value should correspond to the controllers highest bit. For example for a 6 bit panel R5 (Red data bit) on the panel should connect to R7 on the controller, in this case R1 & R0 on the controller will not be connected. Same for Green & Blue.

- **LCD signal cables**: 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.

- **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 for more information on connection.

- **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.

- **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.

- **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.

- **Status LED**: 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.

- **DVI 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.

- **Power Input**: 12V DC 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 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.

- **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 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.

- **Touch Panels**: Support for touch panels or other low power consumption accessories is available by:
    - Connector CNA1 provides 5V & 12V DC which can be used to power such accessories subject to a maximum loading recommended at 500mA.

- **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. **TTL type panels:** Plug the signal cables direct to CN2, CN3 and CN4 (CN4 will not be used for 3x6-bit panel) on the controller board. 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.
   LVDS/PanelLink type panels: A LVDS/PanelLink transmitter board is required. Plug the transmitter board to CN2, CN3 & CN4. Then insert the LCD signal cable with controller end to the connector on the transmitter board. Insert the panel end of the cable the LCD panel connector.

3. **Inverter & Controller:** Plug the inverter cable to CNB1 and CNA1 (if necessary). Plug another end to the connector on the inverter.

4. **Function switch & Controller:** Plug the OSD switch mount cable to CNC1 on the controller board and another to the OSD switch mount.

5. **LED & Controller:** Plug in a 3-way with dual colour LED to connector LED1 on the controller board.

6. **Jumpers & Switches:** Check all jumpers and switches (SW1) are set correctly. Details referring the connection diagram (a separate document) or the jumpers and switches setting table (in the following section).

7. **Jumpers & Inverter & Panel voltage:** Particularly pay attention to the settings of JA3, JA5, JB2 and JB3. JB2 & JB3 are used for inverter control (read inverter specification and information on the jumper table to define the correct settings). JA3 & JA5 are used for panel voltage input (read panel specification and information on the jumper table to define the correct settings).

8. **DVI cable & Controller:** Plug the DVI cable to the connector

9. P4 on the controller board.

10. **Power supply & Controller:** Plug the DC 12V power in to the connector PP1.

11. **Power on:** Switch on the controller board and panel by using the OSD switch mount.

The red LED will light up when power on. The LED will change to green when VGA signal on.

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.

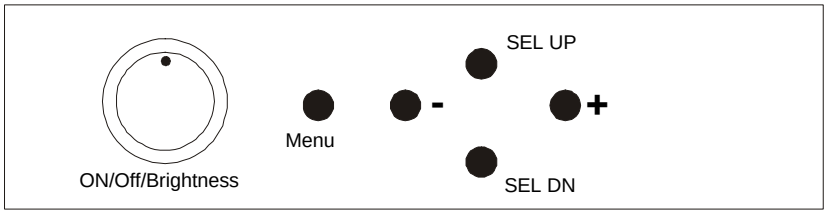
PC SETTINGS
The controller has been designed to take a very wide range of input signals however to optimize the PC’s graphics performance we recommend choosing 60Hz vertical refresh rate – this will not cause screen flicker.

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.

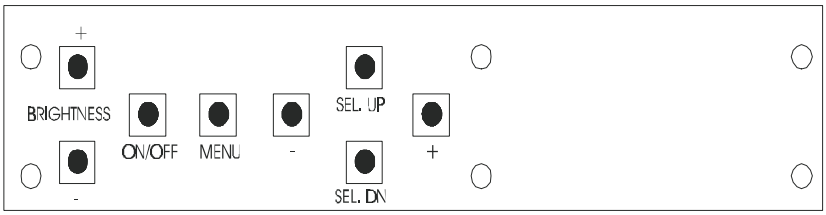
LCD DISPLAY SYSTEM SETTINGS

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)	Menu button	Menu button
Select down – moves the selector to the next function (down)	SEL DN	SEL DN
Select up – moves the selector to the previous function (up)	SEL UP	SEL UP
+ – increase the setting/confirm the select	+	+
- – decrease setting	-	-



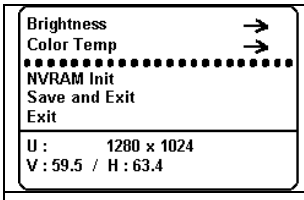
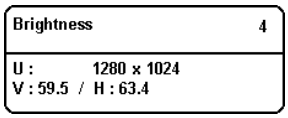
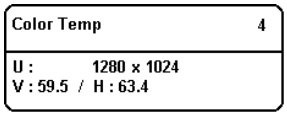
Analog VR type



Digital type

To turn on the OSD menu: Press the MENU button
Select options within OSD menu: Use SEL UP/SEL DN buttons
Increase/decrease setting: Use SEL UP/SEL DN buttons
To confirm the selection: Use MENU button

OSD functions

	Press MENU button will display the OSD menu. Press SEL UP or SEL DN button to select a desire function from the menu.
	**Brightness :** Select “Brightness” function from the OSD main menu. Press SEL UP or SEL DN button to select a desire brightness for the display.
	**Color Temperature :** Select “Color Temp” function from the OSD main menu. Press SEL UP or SEL DN button to select a desire color temperature for the display.
	**NVRAM Init** (Load Factory Defaults) Load the factory default settings.

	**Save and Exit :** Save the current settings and Exit.
	**Exit :** Exit the OSD Menu.

The OSD settings chosen will be stored in memory. The OSD menu can be cleared from the screen by moving the selection bar to the EXIT and pressing the MENU button otherwise it will automatically clear after a few second of non-use.

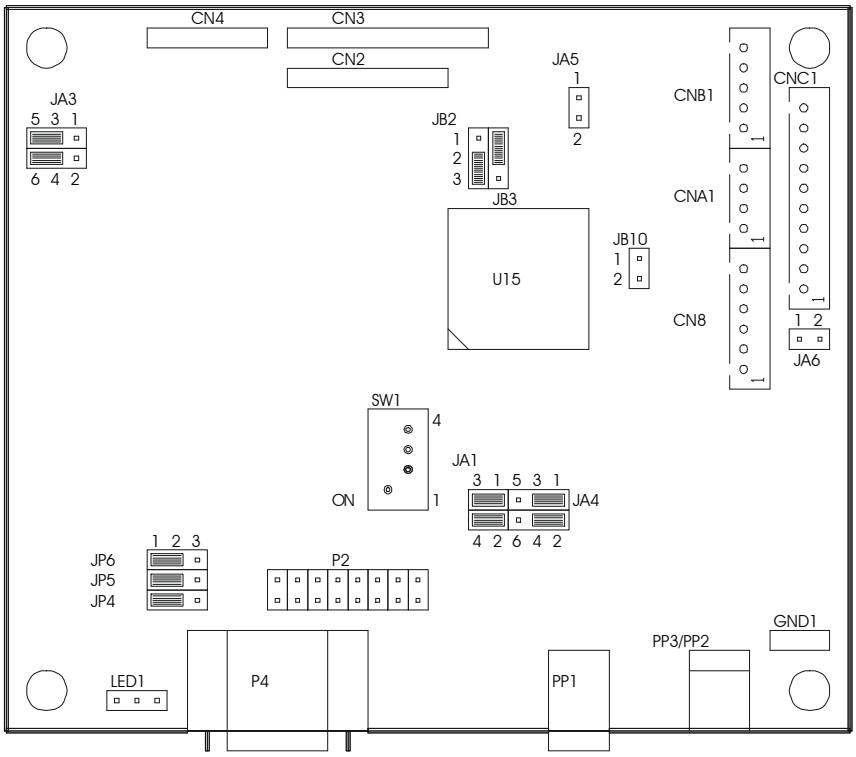
MANUAL & REMOTE CONTROL

The following table shows the comparison of functions available from different controls:

Operation	DV switchmount	DV digital VR switchmount
Menu	Menu	Menu
Default	-	-
Select +	Select +	Select +
Select -	Select -	Select -
Setting +	Setting +	Setting +
Setting -	Setting -	Setting -

CONNECTORS, PINOUTS & JUMPERS

The various connectors are:



Summary: Connectors

Ref	Purpose	Description
CN2	Panel signal	Hirose 28-pin, DF11-28DP-2DSA
CN3	Panel signal	Hirose 32-pin, DF11-32DP-2DSA
CN4	Panel signal	Hirose 20-pin, DF11-20DP-2DSA
CN8	RS-232 serial control	JST 6-way, B6B-XH-A
CNA1	Auxiliary power output	JST 4-way, B4B-XH-A
CNB1	Backlight inverter	JST 5-way, B5B-XH-A
CNC1	OSD controls	JST 12-way, B12B-XH-A
LED1	Dual color LED connector	Header pin 3x1
P4	DVI-D input	DB-24 way high density 3 row
P2	Reserved	Pin header, 8 x 2
PP1	Main power input	DC power jack, 2.5mm contact pin diameter
PP2/3	Power input (alternative)	DC power Molex 2 pin 0.156” pitch

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 **CAUTION**: Incorrect setting can damage panel	1-3 & 2-4 = +3.3V panel voltage (Factory set) 3-5 & 4-6 = +5V panel voltage
JA4	RS-232 logic level	1-3 & 2-4 = 12V 3-5 & 4-6 = 5V
JA5	+12V panel power	Close = +12V panel power available on CN3 pin 3 Open = +12V panel power not available on CN3
JA6	Input Power Control	Close = EXTERNAL SWITCH control Open = SWITCH MOUNT control
JB2	Backlight inverter on/off control – signal level **CAUTION**: Incorrect setting can damage inverter.	1-2 = On/Off control signal 'High' = +12V 2-3 = On/Off control signal 'High' = +5V Open = On/Off control signal 'High' = Open collector
JB3	Backlight inverter on/off control – polarity	1-2 = control signal 'high' = ON 2-3 = control signal 'low' = ON
JB10	Backlight Control enable	1-2 = backlight +12V power supply is always enabled 2-3 = backlight +12V power supply is switched off when backlight is off.
JP4	Reserved	Factory set to 1-2
JP5	Reserved	Factory set to 1-2
JP6	Reserved	Factory set to 1-2
SW1	Reserved	See table below

SW1: Reserved

Pos. #1	Pos. #2	Pos. #3	Pos. #4	Description
ON	OFF	OFF	OFF	Factory default setting

CN2 Panel connector: HIROSE DF11-28DP-2DSA

PIN	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	Ground
3	ER2	Even data bit R2
4	OR2	Odd data bit R2
5	ER3	Even data bit R3
6	OR3	Odd data bit R3
7	ER4	Even data bit R4
8	OR4	Odd data bit R4
9	ER5	Even data bit R5
10	OR5	Odd data bit R5
11	EG2	Even data bit G2
12	OG2	Odd data bit G2
13	EG3	Even data bit G3
14	OG3	Odd data bit G3
15	EG4	Even data bit G4
16	OG4	Odd data bit G4
17	EG5	Even data bit G5
18	OG5	Odd data bit G5
19	EB2	Even data bit B2
20	OB2	Odd data bit B2
21	EB3	Even data bit B3
22	OB3	Odd data bit B3
23	EB4	Even data bit B4
24	OB4	Odd data bit B4
25	EB5	Even data bit B5
26	OB5	Odd data bit B5
27	GND	Ground
28	GND	Ground

CN3 Panel connector: HIROSE DF11-32DP-2DSA

PIN	SYMBOL	DESCRIPTION
1	+12v	DC +12v, reserved & not normally used
2	+12v	DC +12v, reserved & not normally used
3	VLCD12	Optional +12V panel supply (selected by JA5)
4	NC	No connection
5	GND	Ground
6	GND	Ground
7	ER6	Even data bit R6
8	OR6	Odd data bit R6
9	ER7	Even data bit R7 (MSB of lower colour bit panels)
10	OR7	Odd data bit R7 (MSB of lower colour bit panels)
11	EG6	Even data bit G6
12	OG6	Odd data bit G6
13	EG7	Even data bit G7 (MSB of lower colour bit panels)
14	OG7	Odd data bit G7 (MSB of lower colour bit panels)
15	EB6	Even data bit B6
16	OB6	Odd data bit B6
17	EB7	Even data bit B7 (MSB of lower colour bit panels)
18	OB7	Odd data bit B7 (MSB of lower colour bit panels)
19	GND	Ground
20	GND	Ground
21	Vcc	DC +5v, reserved & not used normally
22	Vcc	DC +5v, reserved & not used normally
23	VS	Vertical sync
24	PwrDn	Power down control signal (5v TTL)
25	HS	Horizontal sync
26	DE	Display enable
27	VLCD	Panel power supply (3.3V/5V configurable)
28	VLCD	Panel power supply (3.3V/5V configurable)
29	CKE	Even dot clock
30	CKO	Odd dot clock
31	GND	Ground
32	GND	Ground

CN4 Panel connector: HIROSE DF11-20DF-2DSA

PIN	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	Ground
3	NC	No connection
4	NC	No connection
5	ER0	Even data bit R0 (LSB)
6	OR0	Odd data bit R0 (LSB)
7	ER1	Even data bit R1
8	OR1	Odd data bit R1
9	EG0	Even data bit G0 (LSB)
10	OG0	Odd data bit G0 (LSB)
11	EG1	Even data bit G1
12	OG1	Odd data bit G1
13	EB0	Even data bit B0 (LSB)
14	OB0	Odd data bit B0 (LSB)
15	EB1	Even data bit B1
16	OB1	Odd data bit B1
17	NC	No connection
18	NC	No connection
19	GND	Ground
20	GND	Ground

CN8 RS-232 serial control: JST B6B-XH-A

PIN	SYMBOL	DESCRIPTION
1	SDATA	Reserved
2	SCLK	Reserved
3	VCC	+5V
4	TXD	RS-232 Tx data
5	GND	Ground
6	RXD	RS-232 Rx data

CNA1 - Auxiliary power output: JST B4B-XH-A

PIN	SYMBOL	DESCRIPTION
1	AUX 12V	+12V DC, 500mA max
2	GND	Ground
3	GND	Ground
4	AUX 5V	+5V DC, 500mA max

CNB1 Backlight inverter connector: JST B5B-XH-A

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

CNC1 Function controls connector: JST B12B-XH-A

PIN	SYMBOL	DESCRIPTION
1	PSWIN	Power switch A
2	SW_ON	Power switch B
3	BVR_A	Backlight brightness VR pin A
4	BVR_WIP	Backlight brightness VR pin WIP
5	BVR_B	Backlight brightness VR pin B (470Ω resistor to +5V Vcc)
6	GND	Ground
7	MENU	OSD menu button
8	-/LEFT	OSD -/Left button
9	+/RIGHT	OSD +/Right button
10	SEL_DN	OSD Select down button
11	SEL_UP	OSD Select up button
12	PWR	Power button

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

P4 DVI-D INPUT - 24 way connector

PIN	SYMBOL	DESCRIPTION
1	/RX2	TMDS Data 2-
2	RX2	TMDS Data 2+
3	GND	Ground
4	NC	No connection
5	NC	No connection
6	DDC_CLK	DDC Clock
7	DDC_DAT	DDC Data
8	VS_IN	Analog vertical Sync
9	/RX1	TMDS Data 1-
10	RX1	TMDS Data 1+
11	GND	Ground
12	NC	No connection
13	NC	No connection
14	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	Ground
20	NC	No connection
21	NC	No connection
22	GND	Ground
23	/RXC	TMDS Clock+
24	RXC	TMDS Clock-

LED1 Status LED connector: 3-pin header

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

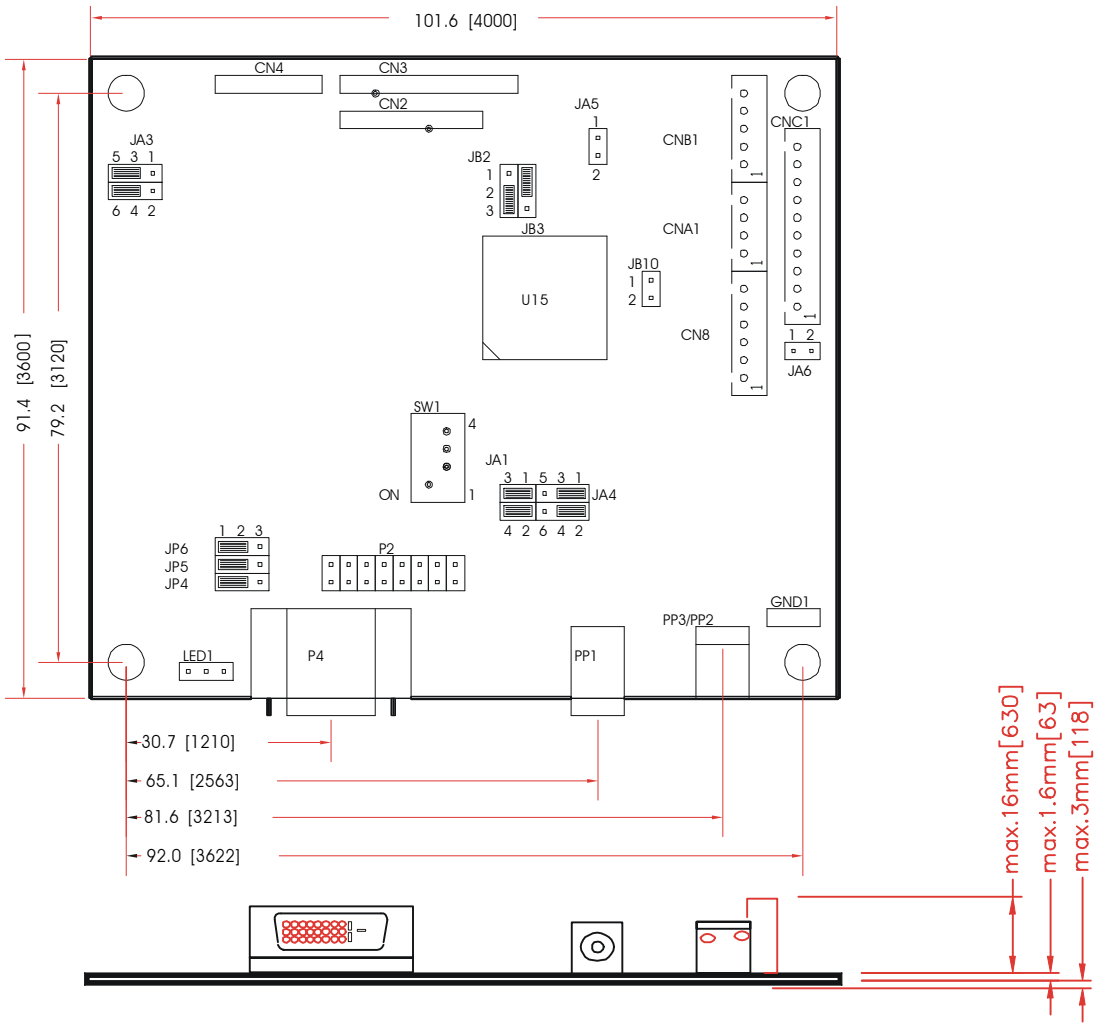
PP1 - 12VDC power supply

PIN	DESCRIPTION
1	+12VDC in middle pin
2	Ground

PP2/PP3 Alternate 12VDC power supply

PIN	DESCRIPTION
1	+12VDC in
2	Ground

CONTROLLER DIMENSIONS



The maximum thickness of the controller is 20.6mm with or without video add-on board (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:

- Firstly setup the controller/display system with the buttons. With controls attached and display system active make any settings for colour, tint and image position as required then switch everything off.
- Remove the control switches, the 12-way (CNC1) cable.
- Use a jumper or similar to connect pins 1 & 2 on CNC1, 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.

Summary: On CNC1 the only pins that are used are for On/Off and Brightness (if controller mounted inverter is used). On CNC1 the pins are for momentary type buttons so it doesn't matter that no buttons are attached.

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 DC. This should be matched with the inverter specification: see table.

CNB1

PIN	DESCRIPTION
1	Ground
2	+12VDC

Remark: For higher power inverter, more current (for 12V) can be taken from CNA1 pin 1.

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, 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 connected to CNC1 pins 4 & 3 or 5: see table.

CNC1

PIN	DESCRIPTION
3	VR A
4	VR WIP
5	VR B

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 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	Compatible with 1280x1024, 1024 x 768, 800x600 & 640x480 resolutions of TFT LCD panels from manufacturers such as: Sharp, Samsung, LG, Fujitsu, NEC, Hitachi, Mitsubishi, Toshiba, etc A specified BIOS and some factory adjustment may be required for individual panel timings.
No. of colours	Up to 3 x 8 bit providing 16.7 million colours.
Signal Level	3.3V , 5V
Panel signal	TTL with LVDS & TMDS options (through add-on board)
Vertical refresh rate	Up to 75Hz at SXGA Up to 75Hz at VGA, SVGA, XGA
Dot clock (pixel clock) maximum	135MHz
Graphics formats	Standard VESA VGA, SVGA, XGA & SXGA; Other special formats through specified BIOS and factory adjustment.
Graphics auto mode detect	VGA, SVGA, XGA & SXGA, non-interlaced
Standard input at source (DVI)	DVI-D
Functions display	On screen display (OSD) of functions
OSD menu functions	Image controls: Panel brightness, Color Temperature
OSD menu controls available	Power On/Off Backlight brightness OSD Menu OSD Select up OSD Select down Setting + Setting -
Control interface	Buttons
Settings memory	Settings are stored in non volatile memory
PC Connectivity	VGA / SVGA / XGA / SXGA analog
Controller dimensions	101mm x 91mm (4” x 3.6”) approximately
Power consumption	10w approx. (not including panel power consumption)
Power load maximum	The controller has an overall 3Amp current limit.
Input voltage	12VDC
Power protection	Fuse fitted
Storage temperature limits	-40^{o}C to +70^{o}C
Operating temperature limits	0^{o}C to +60^{o}C

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.
- Re-layout and custom development services are available.

WARRANTY

The products are warranted against defects in workmanship and material for a period of one (1) 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
- DVI-1280

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Specifications subject to change without notice

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