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Premier View 4 Lite Technical Manual

Issue 1.00



Welcome to the Calibre Premier View Lite Display Driver Manual

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E&OE.



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PRODUCT DESCRIPTION

1.1. Product Overview

The driver is designed to accept the following input signals:

- Composite video
- S-Video
- RGB analogue (VGA-style computer interface)

These signals can be all displayed on the panel and ALL signals are displayed FULL SCREEN. "Near-optical quality" scaling means that the output signal is scaled with minimal loss of quality or image resolution irrespective of the resolution of the incoming signal.

The output resolution can be configured as one of the following standard VESA timings:

- SXGA (1280 x 1024) @ 60Hz
- WXGA (1280 x 768) @ 60Hz
- XGA (1024 x 768) @ 60Hz
- SVGA (800 x 600) @ 60Hz
- WVGA (852 x 480) @ 60Hz
- VGA (640 x 480) @ 60Hz

Links allow easy user configuration of the backlight controls, panel resolution and timing parameters.

Factory defaults have been carefully chosen such that most users will not need to make any adjustments. A simple user interface (supplied) with On Screen Display allows the user to adjust a wide variety of parameters if necessary. Once the parameters are set they can be stored in non-volatile EEPROM, which ensures the set-up is retained when power to the unit is switched off.

The resolution of input signals that can be displayed is governed by the size of the panel. See section 2 for details.

1.2. System Requirements

The interface requires the following parts to create a functioning video monitor:

- 1) A suitable DC supply (see section 2.3)
- 2) A colour display panel with a six or eight bit RGB 5V or 3.3V digital or LVDS interface.
- 3) A backlight inverter to suit the panel used; may have a control input to facilitate user control of backlight dimming.
- 4) A suitable interconnection cable to connect the output signal from the driver interface to the display panel.
- 5) Optional Keypad for user controls (see para. 5.1)

1.3. Product Architecture

The Main Interface PCB

The interface PCB can be supplied to accept interlaced or non-interlaced composite video signals in either PAL, SECAM or NTSC formats and computer signals with either separate sync, composite sync or sync on green. Which input is displayed is priority selectable. Inputs are:

- 1) Computer analogue graphics via 15-way HDD or 10-way pin header
- 2) CVBS via Phono socket or 3-pin header
- 3) Y/C signals via mini DIN (Y/C) socket or 4-pin header

Computer analogue graphics may be input either via an industry standard 15 way hi-density "D" connector or via a 10-pin header, depending on build configuration.

The interface automatically detects the incoming standard and can adjust itself accordingly. After processing input signals the interface supplies the appropriate display data, timing/control and clock signals to drive a colour panel.

The digital output is via two or three standard 2mm DIL pin headers. For displays which require LVDS input signals, a LVDS output is available. This can be user configured as single or dual LVDS 6- or 8-bit channels.

An on-screen display is provided for adjustment of set-up parameters; access is via three buttons fitted to the main PCB or via an optional User Control Panel.

In addition the interface provides a control output to effect backlight brightness via inverter control input.

1.4. User Control Panel

User control is via three push buttons or via an optional keyboard which contains five push buttons. The optional keyboard connects to the Interface Board via a simple 10-way ribbon cable and may be located a short distance (up to 300mm) away from the interface. The extra buttons on the optional keyboard allow direct access to the contrast control.

The MENU button invokes the OSD (on-screen display); when the OSD appears, pressing the button will cycle through the top level of OSD menu, which may be an individual function or the title of a sub-menu. The BR ± buttons are dual-function: when OSD is not displayed they adjust the brightness, and when in OSD mode they are used to move the menu selector highlight or alter the value of the parameter selected.



PRODUCT PERFORMANCE

2.1. Input Signal Compatibility

The resolution of input signal that can be displayed is governed by the size of the panel, see table 1 for details. Note that Groups 1-6 refer to the group descriptions in para. 2.1.2.

Input (See below and para. 2.1.2)	Panel Resolution			
	VGA	SVGA	XGA	SXGA
PAL Video	•	•	•	•
SECAM Video	•	•	•	•
NTSC Video	•	•	•	•
Group 1	•	•	•	•
Group 2	•	•	•	•
Group 3	•	•	•	•
Group 4		•	•	•
Group 5			•	•

Table 1 Displayable Inputs

2.1.1. Video Inputs

Signal formats	Composite (CVBS), S-Video (Y/C), SDI
Video standards	NTSC, PAL, SECAM
Composite (CVBS) input level	1V p-p nominal inc. sync
Luminance (Y) input level	1V p-p nominal inc. sync
Chrominance (C) input level	0.6V p-p nominal
Input Impedance (all inputs)	75 Ohms

2.1.2. Computer (RGB and DVI) Inputs

Signal formats:	Group 1.	DOS	720 x 400 70Hz
	Group 2	VGA	640 x 480 50Hz to 75Hz inclusive
Group 3	MAC I	640 x 480 67Hz	
	SVGA	800 x 600 50Hz to 75Hz inclusive	
Group 4	MAC II	832 x 624 74.7Hz	
	XGA	1024 x 768 50Hz to 75Hz inclusive	
Group 5	MAC 2	1152 x 870 75Hz	
	SXGA	1152 x 900 50Hz to 75Hz inclusive	
	SXGA	1280 x 1024 50Hz to 75Hz inclusive	
RGB video level	0.7V - 1.0V		
RGB input impedance	75 Ohms		
Sync formats	<ol style="list-style-type: none"> 1. Separate H & V sync at TTL levels. 2. Composite -ve sync at TTL levels. 3. Sync on green (an extra 0.3V -ve on the 0.7V 75 Ohm Green video signal) 		

Notes

1. A wide range of display adjustment is possible with the user controls, which makes the interface very tolerant of the incoming video standard. Any signal with any number of lines between 350 and the maximum displayable by the panel can be displayed, with frame rates from 50Hz to 75Hz. For convenience, the interface categorises the signal into groups as above, but wide deviations from the normal standards are allowable.
2. Input channels are automatically scanned in accordance with the selected priority setting. If more than one is active, the active one with highest priority is selected. The user interface can amend the priority setting.

2.2. Output Signal Compatibility

- 2.2.1. Internally, the display interface processes data at a full eight bits per colour.
- 2.2.2. User configuration for 18-bit panels where the output stage is optimised to drive 6 bits per colour, and the two least significant bits for each of R,G,B are disabled.
- 2.2.3. The logic levels are suitable for driving 3.3V or 5V panels.
- 2.2.4. The output resolution can be configured to that of the panel irrespective of the input video signal format. As well as data, the interface generates all the necessary control signals to drive the panel.
- 2.2.5. Power is fed to the panel at 3.3V, 5V or 12V levels (link 11 selects).
- 2.2.6. In addition, the interface provides a control signal to effect backlight dimming via the Lamp Illumination user control. This has to be connected to the control input of the inverter used. .

2.3. Power Requirements

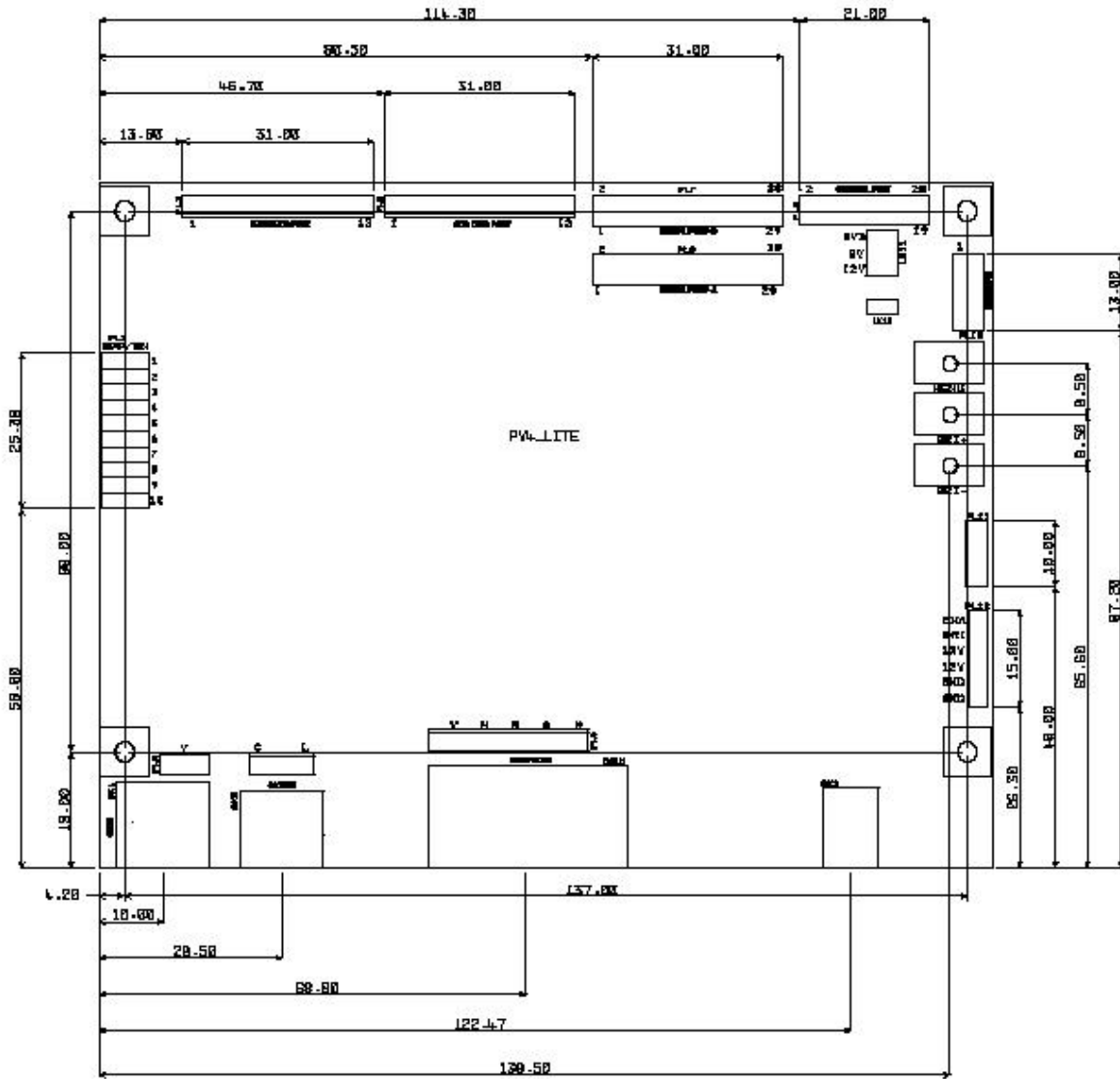
Input voltage	+12V DC nominal. Absolute maximum supply range 10-20VDC.
Current consumption	1 amp at 12V input typical, interface only (PLUS current consumption of display panel).

Notes

1. **The current consumption given above does not include any current passed to the panel - this must be added to make an overall figure.**
2. **Most backlight inverters require a +12V supply at between 1A and 5A depending upon model used.**

PHYSICAL SPECIFICATION

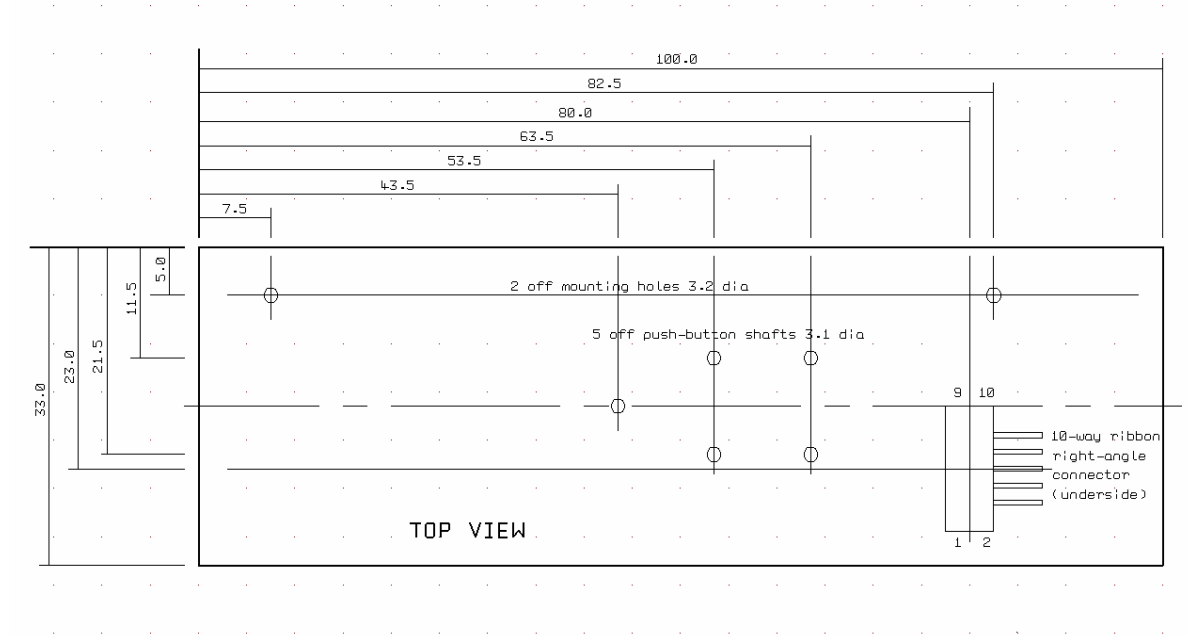
3.1. Interface panel



All dimensions are in mm unless otherwise stated.

3.2. Optional User control Panel

User control panel dimensions are 100mm x 33mm x 15mm overall height



All dimensions are in mm



INTERCONNECTION AND CONFIGURATION INFORMATION

4.1. Input Signal and Power Connection Details

4.1.1. Computer Video Input – CON1 or PL6

Connector type - 15-way high density 'D' socket, mating type 15-way high density 'D' plug or via 10-way 0.1" male, mating type 10-way 0.1" female.

15 way Pin	10 way pin	Signal name	Function
1	1	RIN	Red Video Input
2	3	GIN	Green Video Input
3	5	BIN	Blue Video Input
4	2	N/C	
5	4	GND	
6		GND	Red Gnd
7	6	GND	Green Gnd
8		GND	Blue Gnd
9		+5V PNP	DDC +5V input
10	8	GND	Sync Gnd
11	10	N/C	
12		VGASDA	DDC data
13	7	HSIN	Horizontal/ Comp Sync In
14	9	VSIN	Vertical Sync Input
15		VGASCL	DDC clock

Table 2 Computer Input Connections

4.1.2. CVBS (Composite) Video Input – SK1 or PL2

Connector type - Phono Socket, mating type Phono Plug or via 3-way 0.1" male, mating type 3-way 0.1" female

BNC Pin	3 way Pin	Signal name	Function
Inner	2	COMPIN	Composite (CVBS) Video I/P
Outer	1	GND	
	3	GND	

Table 3 CVBS Input Connections

4.1.3. S-Video (Y/C) Video Input – SK2 or PL4

Connector type - 4-way mini DIN Socket, mating type 4 way mini DIN Plug or via 4-way 0.1" male, mating type 4-way 0.1" female

DIN Pin	4 way Pin	Signal name	Function
1	2	GND	
2	3	GND	
3	4	CHROMA IN	Chroma (C) Video Input
4	1	LUMA IN	Luma (Y) Video Input

Table 4 S-Video Input Connections

4.1.4. Inverter Control Connector PL11

Connector type - 4-way 0.1" male, mating type 4-way 0.1" female.

Pin	Signal name	Function
1	ENA	Backlight inverter enable
2	BRI	Backlight intensity control (note 1).
3	+5V	Supply voltage
4	GND	

Table 5 Inverter Control Connections

4.1.5. Power Input / Inverter Brightness Connector – PL12

Connector type - 6-way 0.1" male, mating type 6-way 0.1" female.

Pin	Signal name	Function
1	ENA	Backlight Inverter enable (see note 3)
2	BRI	Backlight Intensity Control (see note 1)
3	VIN	Power Input for Driver - see section 2.3 for details
4	VIN	Power Input for Driver - see section 2.3 for details
5	GND	
6	GND	

Table 6 Power Supply Connections

4.1.6. Power Input Connector SK4

Connector type – 2.5mm coaxial power jack. Mating connector – 2.5mm i/d, 5mm o/d socket

Pin	Signal name	Function
Centre	VIN	Power Input for Driver - see section 2.3 for details
Outer	Gnd	Gnd
Break	N/C	

Table 9 Power Input Connections

Notes

1. Most inverters require only one connection to control the backlight brightness. Pin 2 (BRI) should be connected to the "dimming" pin on the inverter.
2. It is possible to invert the BRI control signal so that decreasing the control voltage ratio increases the brightness. (table 16 refers)
3. Normal BRI is adjustable between 0V and 5V, some inverter require a control 0V to 1V in this case fit Link 12
4. INVENABLE Inverter enable: +5V = On, 0V = Off. It is possible to invert the INVENABLE (table 16 refers)

4.1.6.1. Optional Keypad Connector PL10

Pin	Signal name	Function
1	Gnd	
2	Gnd	
3	+5V	For low power devices e.g. LED Power On indication
4	N/C	
5	Menu	Invokes OSD, thereafter takes user down one menu level
6	N/C	
7	Con-	Contrast decrease, also decrement value in current selection
8	Con+	Contrast increase, also increment value in current selection
9	Br+	Brightness increase, also increment value in current selection
10	Br-	Brightness decrease, also decrement value in current selection

Table 10 Keypad Connector

4.2. Display Panel Connection Details

Warning

Before wiring up to the panel, read the section on EMC Compliance and check the setting of LK11 (Display Power Voltage).

4.2.1. Digital Video Interconnect to Display – PL8

Connector type – 2 x 15 2mm pin DIL header.

Pin	Signal name	Function
1	GND	GND
2	AR0	Red Data A Bit 0 (LSB)
3	AR1	Red Data A Bit 1
4	AR2	Red Data A Bit 2
5	AR3	Red Data A Bit 3
6	AR4	Red Data A Bit 4
7	AR5	Red Data A Bit 5
8	AR6	Red Data A Bit 6
9	AR7	Red Data A Bit 7 (MSB)
10	GND	GND
11	GND	GND
12	AG0	Green Data A Bit 0 (LSB)
13	AG1	Green Data A Bit 1
14	AG2	Green Data A Bit 2
15	AG3	Green Data A Bit 3
16	AG4	Green Data A Bit 4
17	AG5	Green Data A Bit 5
18	AG6	Green Data A Bit 6
19	AG7	Green Data A Bit 7 (MSB)
20	GND	GND
21	GND	GND
22	AB0	Blue Data A Bit 0 (LSB)
23	AB1	Blue Data A Bit 1
24	AB2	Blue Data A Bit 2
25	AB3	Blue Data A Bit 3
26	AB4	Blue Data A Bit 4
27	AB5	Blue Data A Bit 5
28	AB6	Blue Data A Bit 6
29	AB7	Blue Data A Bit 7 (MSB)
30	GND	GND

Table 11 Digital Video Interconnect to Display

4.2.2. Digital Video Interconnect to panel – PL7

Connector type – 2 x 15 2mm pin DIL header.

Pin	Signal name	Function
1	GND	GND
2	BR0	Red Data B Bit 0 (LSB)
3	BR1	Red Data B Bit 1
4	BR2	Red Data B Bit 2
5	BR3	Red Data B Bit 3
6	BR4	Red Data B Bit 4
7	BR5	Red Data B Bit 5
8	BR6	Red Data B Bit 6
9	BR7	Red Data B Bit 7 (MSB)
10	GND	GND
11	GND	GND
12	BG0	Green Data B Bit 0 (LSB)
13	BG1	Green Data B Bit 1
14	BG2	Green Data B Bit 2
15	BG3	Green Data B Bit 3
16	BG4	Green Data B Bit 4
17	BG5	Green Data B Bit 5
18	BG6	Green Data B Bit 6
19	BG7	Green Data B Bit 7 (MSB)
20	GND	GND
21	GND	GND
22	BB0	Blue Data B Bit 0 (LSB)
23	BB1	Blue Data B Bit 1
24	BB2	Blue Data B Bit 2
25	BB3	Blue Data B Bit 3
26	BB4	Blue Data B Bit 4
27	BB5	Blue Data B Bit 5
28	BB6	Blue Data B Bit 6
29	BB7	Blue Data B Bit 7 (MSB)
30	GND	GND

Table 12 Digital Video Interconnect to panel

4.2.3. Digital Video Interconnect to panel – PL7

Connector type – 2 x 15 2mm pin DIL header.

Pin	Signal name	Function
1	GND	GND
2	DCIk	Data clock
3	GND	GND
4	HS	Horizontal Sync output
5	VS	Vertical Sync output
6	GND	GND
7	DEN	Data Enable
8	GND	GND
9	0V	Panel Ground
10	0V	Panel Ground
11	0V	Panel Ground
12	0V	Panel Ground
13	0V	Panel Ground
14	0V	Panel Ground
15	VPAN	Panel Power
16	VPAN	Panel Power
17	VPAN	Panel Power
18	VPAN	Panel Power
19	VPAN	Panel Power
20	VPAN	Panel Power

Table 13 Digital Video Interconnect to panel

4.2.4. LVDS adapter output connections

Connector type – 12 -way 0.1" male, mating type 12 -way 0.1" female.

Even PL3

Odd PL5

PIN	FUNCTION		PIN	FUNCTION
1	GND		1	GND
2	CLK -		2	CLK -
3	CLK +		3	CLK +
4	OUT3 -		4	OUT3 -
5	OUT3 +		5	OUT3 +
6	OUT2 -		6	OUT2 -
7	OUT2 +		7	OUT2 +
8	OUT1 -		8	OUT1 -
9	OUT1 +		9	OUT1 +
10	OUT0 -		10	OUT0 -
11	OUT0 +		11	OUT0 +
12	VPAN		12	VPAN

Table 14 LVDS Interconnect to panel

NOTE Data will only be present on these connectors if LVDS is selected as the output (Table 15 refers).

Notes

- 1) The driver generates either six or eight bits of data for each of red, green and blue making a total of 18 or 24 signals. Most panels have six bits per colour, in which case the two least significant bits from the driver should be left disconnected. Table 15 link 4 refers.

4.3. Option Link Settings

Link Number	Function Link Off	Function Link On
1	+5V Inverter Enable On 0V Inverter Enable Off	0V Inverter Enable On +5V Inverter Enable Off
2	+V Inverter Brighter 0V Inverter Dimmer	0V Inverter Brighter +V Inverter Dimmer
3	Single Port (SP) Output	Dual Port (DP) Output
4	8 Bits per colour output	6 Bits per colour output
5	Run panel at 60Hz (see Note 1)	Run panel at 50Hz (see Note 1)
6	Res 3 (see Note 2)	
7	Res 2 (see Note 2)	
8	Res 1 (see Note 2)	
9	Digital Output Only	LVDS Output (see note 3)
10	LVDS Type1 (see note 3)	LVDS Type 2 (see note 4)

Table 15 Option Links

Res3	Res2	Res1	Output Resolution
On	On	On	VGA 640 x 480 @ 60Hz
On	On	Off	Wide VGA 852 x 480 @ 60Hz
On	Off	On	SVGA 800 x 600 @ 60Hz
On	Off	Off	XGA 1024 x 768 @ 60Hz
Off	On	On	Wide XGA 1280 x 768 @60Hz
Off	On	Off	SXGA 1280 x 1024 @ 60Hz

Table 16 Output Resolution Links

Notes:

- 1) When running a 50Hz video input e.g. PAL it is preferable to run the panel vertical refresh at the same rate as this minimises motion artefacts. Most panels will run at 50Hz, but if excessive flickering is noticed select to run the panel at 60Hz.
- 2) The panel resolution is selected via the Resx jumpers see table 16 for details.
- 3) Only select this option if your product supports LVDS i.e. PL3 and PL5 are fitted.
- 4) The LVDS type is determined by the panel data order (see figures below). If the colours are mixed up or the image distorted then it is possible that the wrong LVDS type has been selected. For digital outputs this link should be in the OFF position.

- 5) THESE JUMPERS ARE ONLY READ WHEN THE UNIT IS POWERED UP. TO MAKE A CHANGE TO THE SETTINGS YOU MUST POWER THE UNIT UP AFTER CHANGING THE JUMPERS

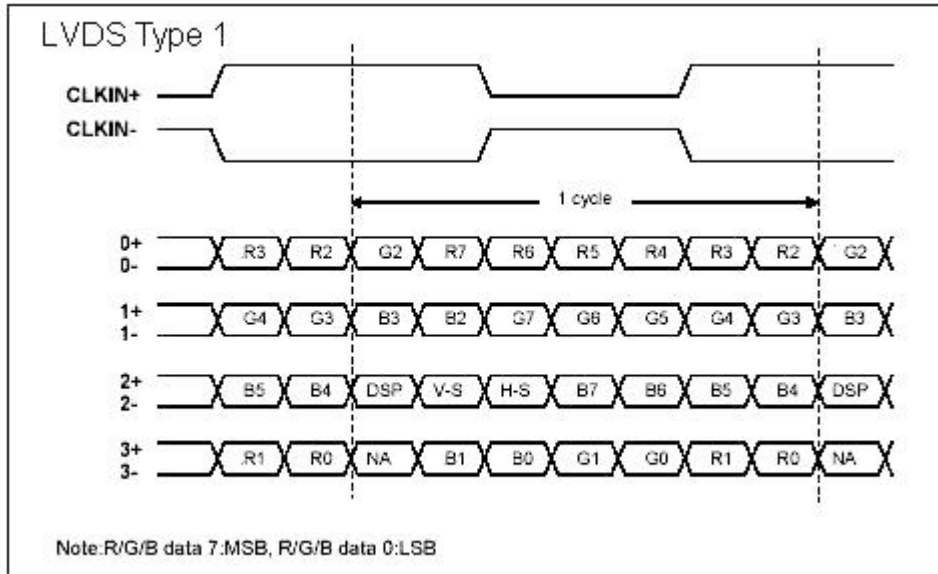


Figure 1.0 LVDS Type 1 Data Pattern (Link 10 off)

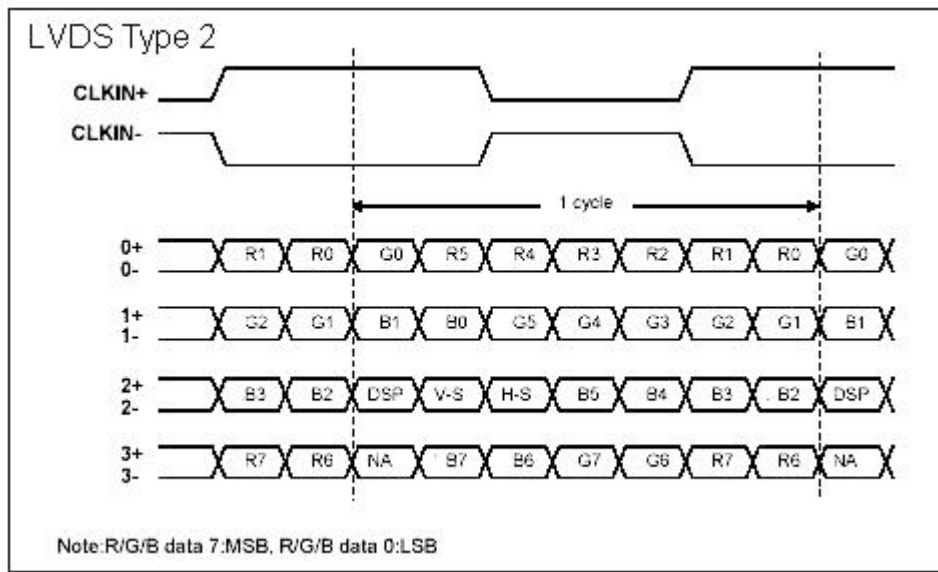


Figure 2.0 LVDS Type 2 Data Pattern (Link 10 on)

TI LVDS X'mitter (SN75LVDS83) Signal name	LVDS type 1	LVDS type 2
D0	Red2	Red0
D1	Red3	Red1
D2	Red4	Red2
D3	Red5	Red3
D4	Red6	Red4
D5	Red1	Red7
D6	Red7	Red5
D7	Green2	Green0
D8	Green3	Green1
D9	Green4	Green2
D10	Green0	Green6
D11	Green1	Green7
D12	Green5	Green3
D13	Green6	Green4
D14	Green7	Green5
D15	Blue2	Blue0
D16	Blue0	Blue6
D17	Blue1	Blue7
D18	Blue3	Blue1
D19	Blue4	Blue2
D20	Blue5	Blue3
D21	Blue6	Blue4
D22	Blue7	Blue5
D23	NA	NA
D24	H Sync	H Sync
D25	V Sync	V Sync
D26	Disp Timing	Disp Timing
D27	Red0	Red6

Note:

Red0: LSB, Red7: MSB

Table 18 LVDS Data Pattern

OPERATION

5.1. Normal Operation

Normal operation of the interface consists of little more than connecting up the power supply, video and computer signals and switching on. Signals are scanned in accordance with the currently selected priority list and the highest priority valid signal is displayed. If the priority or any other picture parameter needs adjustment then the following section describes the user interface.

	VIDEO	GRAPHICS
Brightness	Controls backlight intensity	
Contrast	Controls video gain	
Geometry	Image edge adjust (size and position).	Image edge adjust (size and position), clock (tune), phase (sharpness) Wide Screen input selection (Wide panels only)
Input Select	RGB, CVBS, Y/C	
Colour	Colour, contrast, black level, hue (NTSC only)	Contrast, black level
System	ESC, Save, Reset, OSD timeout, OSD X/Y position, Software Issue	
Auto Setup	Not applicable	Yes/No (analogue graphics only)

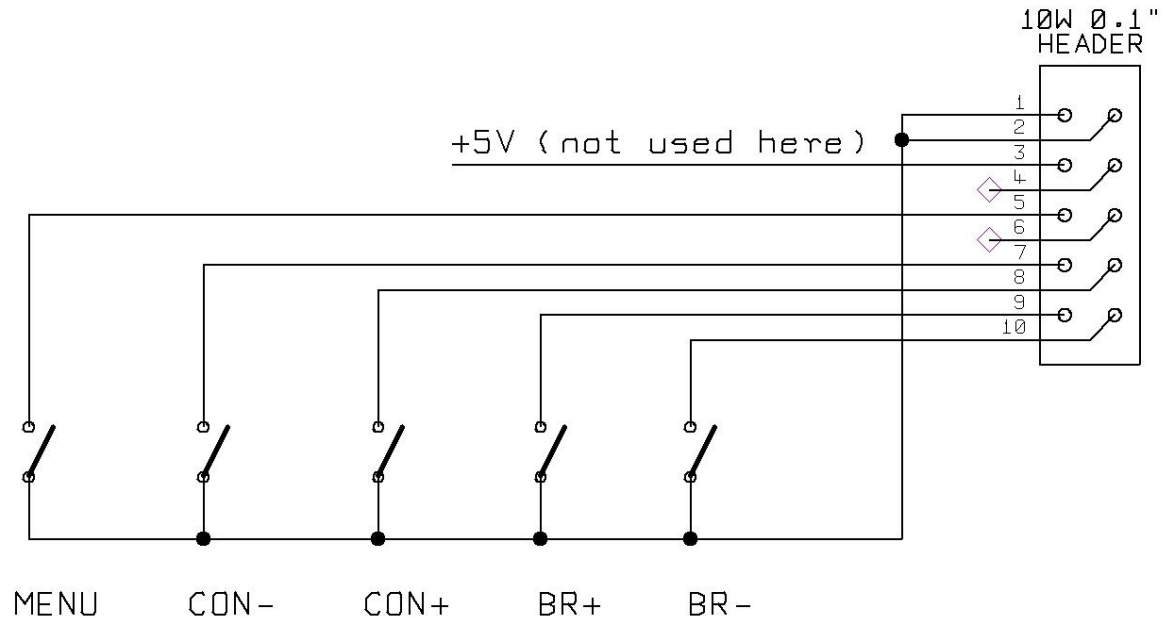
Table 18: Function-dependent Menu Options.

5.1.1. User Interface Buttons

The physical user control panel consists of three on board buttons or five push buttons on the optional User Keyboard. One of these is dedicated to invoking the OSD Menu while the others are dual purpose.

5.1.2. Optional Keypad Schematic

The OSD keypad can be supplied as an option, but in case users wish to design their own OSD controller, the schematic for the supplied keypad is shown below.



5.2. User Controls.

5.2.1. Direct Brightness Adjustment

Pressing the Br+ or BR- button controls the intensity of the backlight, assuming the backlight inverter has been correctly wired through to the interface panel. After adjustment, the new Brightness value is displayed on the screen until the OSD timeout period expires (see para. 5.5.3). The new setting is then stored and the display returns to normal.

5.2.2. Direct Contrast Adjustment (Only available via the Optional Keypad)

Pressing the Con+ or Con- button controls the contrast (video gain) of the picture. After adjustment, the new contrast value is displayed on the screen until the OSD timeout period expires. The new setting is then stored and the display returns to normal.

5.2.3. Menu Select

Pressing this button displays picture identification information together with a menu of icons. To access lower-level functions, press Br+ or Br- to toggle through the menus available for the currently displayed signal type, then press MENU again to select that function. The MENU button has a similar function to the ENTER key on a computer keyboard. Exit from a menu is by selecting BACK which returns to the previous level. If the controls are not touched for a period determined by OSD TIMEOUT in the SYSTEM menu, the on-screen display is cancelled. At this point, any changes made are saved. To discard changes, select "ESC" in the System menu.

5.3. OSD Menu

At the top of the menu is a line which identifies the type of signal currently displayed. For computer signals the same section displays the signal resolution, together with horizontal and vertical frequencies. If its setup has been saved, the user number of that signal is also displayed. These figures are for guidance only.

5.3.1. Brightness and Contrast

These perform the same functions as the direct button operations in para. 5.2.1 and 5.2.2 above.

5.3.2. The Geometry Menu

Geometry adjustments can be made for all types of input individually, so that if the input type changes, the geometry adjustment will change with it. Saved settings include one each for PAL, NTSC, SECAM.

Additionally, a total of 16 settings may be stored for analogue graphics. If this graphics table is full, further stored settings will over-write the earliest so that the settings complement contains the latest .

- 1) Edge Adjustment – Picture Size and Position Controls. The four “Edge” controls shift each edge within available limits. Note that the maximum available shift depends on the incoming video standard and the display panel type, and may be restricted vertically. This provides very flexible and easy to use image size and position control.
- 2) Clock (Graphics only). This sets the total number of input pixels per line to correspond with the input source, and will normally require adjustment only for unusual signals.
- 3) Phase (Graphics only) This adjusts the internal clock to sample each pixel as near as possible to the centre. Note that the maximum available shift depends on the incoming video standard and the display panel type. It will normally require adjustment for unusual types of signal.
- 4) Wide / Normal Input (Graphics only) If a wide screen panel is selected using the Resx links then it is possible to display wide screen inputs. PV4 Lite is unable to automatically detect that the input signal is a wide screen format and needs to be told. So for example with a Wide XGA panel and a Wide XGA input (1280 x 768) the user should select “Wide Input”. PLEASE NOTE. Changing mode will result in the loss of previously saved user settings for ALL computer inputs

5.3.3. Input Select

This allows the user to configure the preferred input selections. If a facility is not fitted, it will be displayed but not selectable. By pressing the Br+/Con+ and Br-/Con- keys, the following choices can be made:

- 1) Signal type priority: Video-graphics or Graphics-video
- 2) Video priority search order –
CVBS – Y/C
Y/C – CVBS

5.3.4. The Colour Menu

Colour Temperature Allows the user to select one of three predefined colour temperature settings or to turn colour temperature adjustment off.

- 1) Video Inputs - The contrast (video gain) and brightness (black level) parameters, also colour saturation for PAL, NTSC and SECAM inputs can be accessed from this menu. For NTSC signals, there is an additional HUE option.
- 2) Computer Inputs The contrast (video gain) and brightness (black level) parameters.

5.3.5. The System Menu

This selection contains functions which are more applicable to system operation than to picture adjustment:

- 1) Esc: The Esc option returns to the last saved setup. It is useful if an adjustment has been made in error. After an Esc the menu is removed.
- 2) Save: The Save option saves all the user adjustments for the displayed signal type. The new adjustments are stored in non-volatile memory and so are still valid when powered down. After a Save the menu is removed.
- 3) Reset: There are two types of Reset option:

Simultaneously pressing all three buttons Menu, Br+, Br-, restores to factory default state all the user adjustments for the signal currently being displayed. This is useful if a picture set-up has become hopelessly lost or confused. The Reset option can also be accessed even if the OSD has been lost. After a Reset the menu is removed.

If the user wishes to restore all settings to their factory defaults, this can be done by pressing MENU and BR+ buttons simultaneously while the unit is being powered up. The facility should be used only after due consideration that **all user setups will be lost, being over-written by the factory default settings.** The process may take up to 20 seconds to complete.
- 4) OSD Timeout: This selection enables the user to control the time after which the OSD display is cancelled. It can be adjusted in 15-sec increments from 1 (=15 sec) to 4 (=1 min) approximately.
- 5) OSD X and OSD Y: These functions control the position of the OSD display on the screen. Its default setting is such as to place the OSD in the centre of the screen, but the user can adjust its position with these functions.
- 6) Software Issue : This is not a user parameter but provides details relating to the issue of firmware installed.

REGULATORY APPROVALS

6.1. EMC Approvals

Whilst the interface sold as a component and as such compliance to EN89/336/EEC is not mandatory, it is appreciated that many customers will be using the interface as part of a system which will have to be CE marked. The interface has been carefully designed to maximise its EMC performance in terms of both emissions and susceptibility. When correctly installed and interfaced to a compliant display panel, conformance to EN55022 part A is achievable. System integration should be done by an EMC competent person, following the advice in the next section.

6.2. EMC Installation Guidelines

If you are unsure about your ability to design with EMC in mind then please ASK US FOR ADVICE NOW - EMC compliance is much easier to design in than to retrofit.

The multi-way cables between the interface and the display panel carry high speed digital signals and as such are potentially major EMC emitters. Keep these as short as possible and make sure there is a substantial earth between the interface and display panel. If the final assembly is to be housed in a plastic rather than metal enclosure this is doubly important and the use of screened cables should be considered.

If a plastic case is being used consider the use of either internal metal-spraying or a tinplate screening can to cover the interconnect to the display panel.

Make sure there is a substantial GND connection between the interface and the chassis plate (the mounting screws do well) and the chassis plate and the display panel.

Keep any signal leads to the outside world (such as the CVBS, Computer input and power supply wires) as short as possible and DO NOT bundle or tie-wrap them to each other or any other wires carrying digital signals. It may be beneficial to put ferrite snubber rings or cylinders around the wires of digital panel interconnects.



ENVIRONMENTAL AND SAFETY

7.1. Operating

Temperature 0°C to 50°C

Humidity (non condensing) 0% to 95%

7.2. Storage

Temperature -25°C to 85°C

Humidity (non condensing) 0% to 95%

7.3. Safety Issues

The display interface and keyboard are low voltage devices which do not generate any hazardous voltages. However, when designing an installation, bear the following points in mind:

Any mains operated power supply should comply with safety and EMC legislation in the country of operation. Any mains wiring should comply with the safety standards applicable in the country of operation.

The backlight inverter in most display panels generates potentially lethal voltages. Ensure that the installation offers adequate protection to the operator from this hazard.



ABBREVIATIONS

This section expands abbreviations peculiar to video applications which may be used in this manual. Signal-name mnemonics are not included.

CVBS	Composite Video Baseband Signal (alternatively Chroma, Video, Blanking and Sync)
DDC	Data Display Channel
LVDS	Low-voltage differential signalling
NTSC	National Television Systems Committee (USA, Canada, Japan TV standard)
PAL	Phase Alternating Line
RGB	Red, Green, Blue analogue video
SECAM	Systeme Electronique Couleur Avec Memoire - TV broadcast standard used in France, Middle East and most of Eastern Europe.
SMPTE	Society of Motion Picture Television Engineers
SOG	Sync on Green
SVGA	Super VGA – 800x600 pixels
SXGA	Super XGA – 1280x1024 pixels
UXGA	Ultra XGA – 1600x1200 pixels
VGA	Video graphics array – 640x480 pixels
XGA	Extended graphics array – 1024x768 pixels
Y/C	Luminance (Y) and Chrominance (C), also called S-video

IMPORTANT NOTES

1. PLEASE CONFIRM WITH CALIBRE THAT THE INTERFACE AND INTERCONNECT ARE SUITABLE FOR THE PANEL YOU INTEND TO USE. IN GENERAL MOST MANUFACTURERS ARE CONSISTENT WITH PINOUTS ETC. ACROSS THEIR RANGE BUT THIS IS NOT ALWAYS THE CASE.
2. CALIBRE UK LTD ACCEPT NO LIABILITY FOR DAMAGE TO DISPLAY PANELS DUE TO INCORRECT CONNECTION WHEN THE CUSTOMER USES AN INTERCONNECTION CABLE OF HIS OWN, OR A THIRD PARTY'S, DESIGN.
3. THE INTERFACE OUTPUT POWER IS SELECTABLE VIA LK11 TO DRIVE 12V, 5V OR 3.3V DISPLAY PANELS. CALIBRE UK LTD ACCEPT NO LIABILITY FOR DAMAGE TO PANELS IF LK11 IS INCORRECTLY SET.