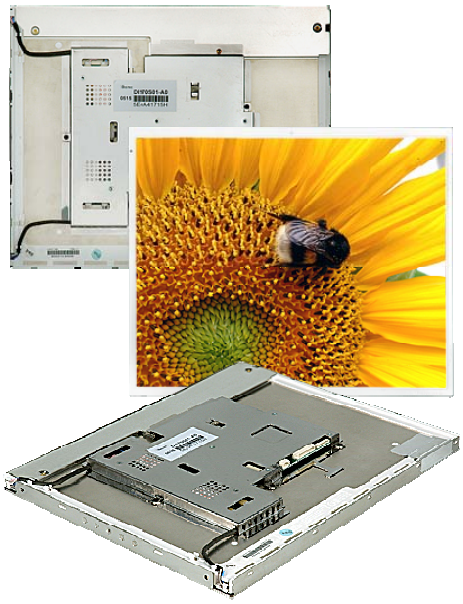
USER MANUAL

17” Compact Panel

DI170S01-A01

TFT Display + Backlight inverter + RGB board in one chassis

Orderable P/N: SA-02-015



Rev 1

May 23, 2005

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flatpanel displays and solutions

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1 Revision History

Date	Rev.No.	Description	Page
10.02.2005	0	First release of datasheet	
23.05.2005	1	Final release	

2 General Description

The DI170S01-A01 from Distec's CompactPanel Series is an open frame monitor providing an analog RGB interface for 17" SXGA TFT LCD panels with a high quality screen image. This monitor supports from VGA to UXGA resolution at a maximum of 85Hz refresh rate (refer to point 8.1) with automatic up- and downscaling function to full screen size.
It gives a lot of convenience to the user in installing various applications such as gaming, amusement, industry and so on and accessing the GUI (Graphic User Interface).

The DI170S01-A01 is a CE certified product.

3 Absolute Maximum Ratings

ITEM	DESCRIPTION	REMARKS
Model Name	DI170S01-A01	
LCD Module	LTM170EU-L21	Refer to the clause 5.1 Panel Specification
Input Signal	Analog RGB DC 12V/2.6A *	* Measured at 23°C ambient temperature
Resolution	Horizontal: Typ. 64, Max. 82.1 KHz Vertical: Typ. 60, Max. 77 Hz Analog RGB : VGA/SVGA/XGA/SXGA/UXGA	Special timing available 1600x1200 @ 60Hz Max.
Receptacle	DC Jack, KEY Connector, RGB Connector	
User Controls	5 Buttons Controls	
Image Scaler	gm2121	Genesis Microchip
Power Consumption	31W Max *	* Measured at 23°C ambient temperature
Dimension		Refer to the clause 6.1
Plug & Play	DDC 2B	VESA
Power Management	Supports VESA DPMS	

4 Absolute Ratings of Environment

Item	Symbol	Min.	Max.	Unit	Note
Storage temparature	TSTG	-25	60	°C	(1)
Operating temparature (Glass surface temperature)	TOPR	0	50	°C	(1)
Shock (non-operating)	Snop	-	50	G	(2), (4)
Vibration (non-operating)	Vnop	-	1.5	G	(3), (4)

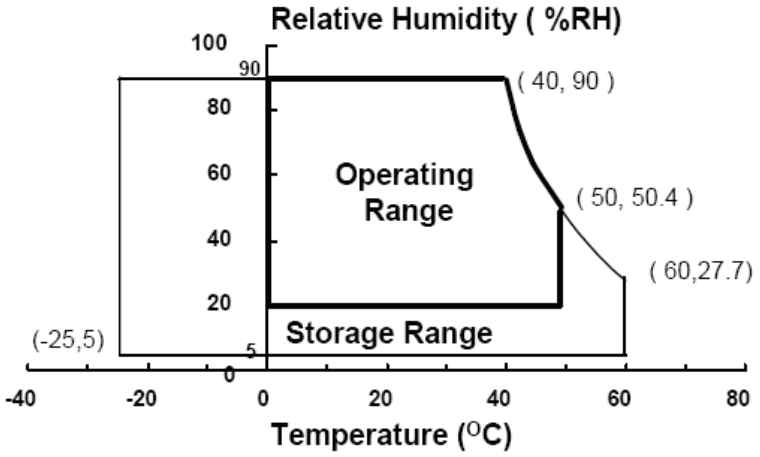
Note

(1) Temperature and relative humidity range are shown in the figure below.
90 % RH Max. (40 °C ≥ Ta)
Maximum wet-bulb temperature at 39 °C or less. (Ta > 40 °C) No condensation.

(2) 11 ms, sine wave, one time for ±X, ±Y, ±Z axis

(3) 10-300 Hz, Sweep rate 10 min, 30 min for X, Y, Z axis

(4) At vibration and shock test, the fixture which holds the module to be tested has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.



5 Electrical Specification

5.1 Panel Specification

Item	Description	Unit
Type No.	Samsung LTM170EU-L21	
Size	17″ Diagonal	Inch
Active Display Area	337.92 x 270.336	mm
Number of Pixels	1280 (H) x 1024 (V)	
Pixel Arrangement	RGB Vertical Stripe	
Pixel Pitch	0.264 x 0.264	mm
Color Depth	16.2M True Color	
Surface Treatments	Hard Coating (3H), Haze 25%	
Viewing Angle	Horizontal : Θ L 75 Θ R 75 Vertical : Φ H 75 Φ L 60	degree
Contrast Ratio	Typ. 700 : 1	
Response Time (CR≥ 10)	Rise time (tr) : 2 ms(Typ.) Fall time (tf) : 6 ms(Typ.)	
Average Brightness	Typ. 300 cd/m2	
Frame Rate	Typ. 60Hz, Max. 77Hz	
Panel Dimension	(WHD) 358.5 x 296.5 x 17.5	mm
CCFL	4 (2 Dual)	

5.2 Input Signal Characteristics

Input Signal	Description	Unit	Min	Typical	Max	Remarks
DC input	DC Voltage	Vdc	11.4	12	12.6	
	Power Consumption	Watts		26	31	for full Option
15Pin D-Sub	Video(SOG)	Vp-p		0.7	1.0	75Ω Terminated
	Sync Voltage	Vp-p		5.0		
	Horizontal Frequency	kHz	56.7	64	82.082	Depends on Mode
	Vertical Frequency	Hz	55	60	77	Depends on Mode

5.3 Power Management

VESA DPMS standard is applied for power management control

Mode	HSync.	VSync.	LED (red)	LED (grn)	Power Consumption (nominal)
On	Active	Active	Off	On	< 31 W
Stand-by	Inactive	Active	Blinking	Off	< 3 W
Suspend	Active	Inactive	Blinking	Off	
Off	Inactive	Inactive	Off	Off	

5.4 Connector Pin Assignment

5.4.1 CN6: DC Input

Part No.	Pin No.	Description	Remarks
PHR-4 (JST)	1,2 3,4	GND Vcc(12V/5A)	

5.4.2 CN1: Analog RGB Input

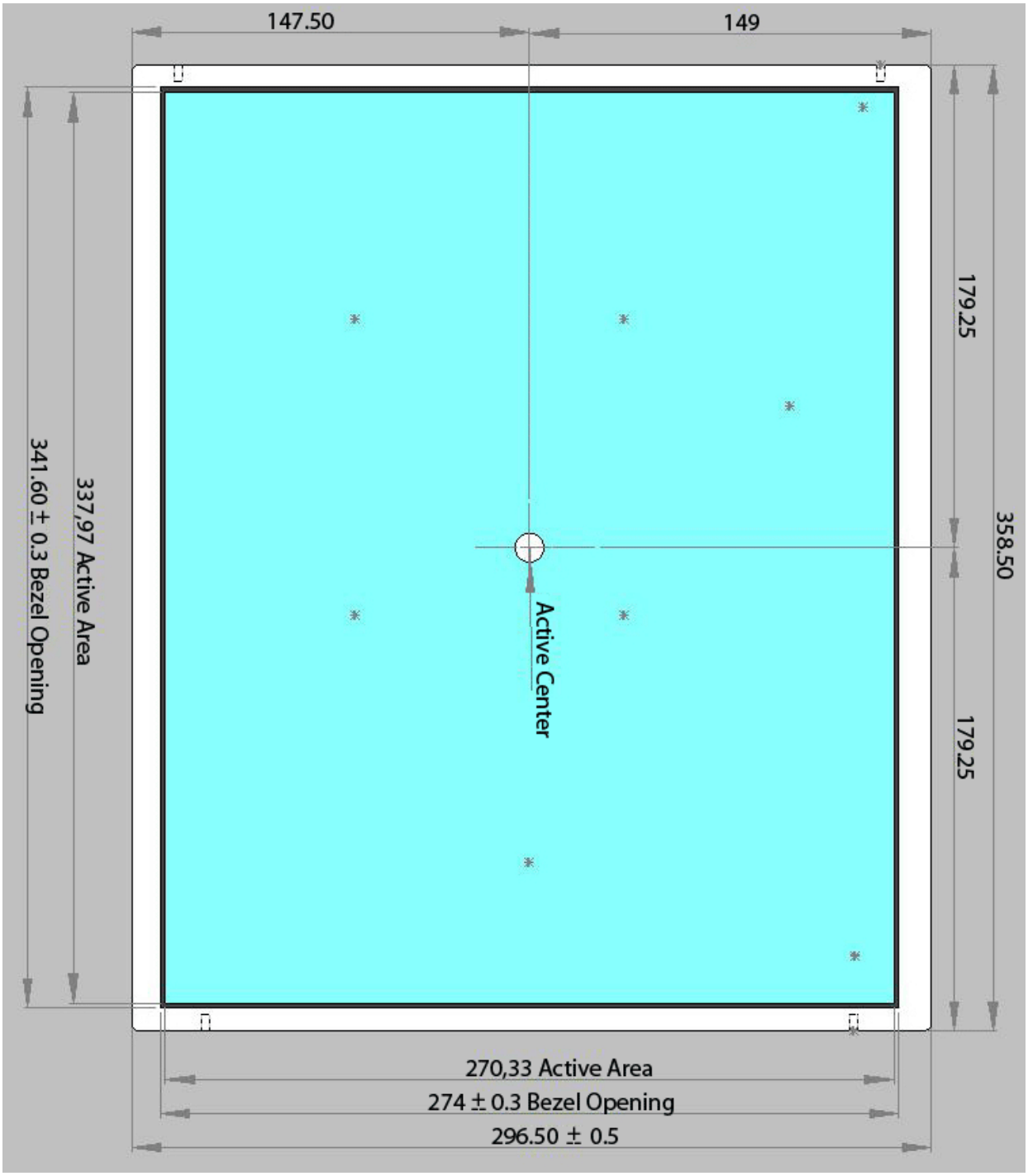
Part No.	Pin No.	Description	Remarks
S13B-PH-SM3-TB (JST)	1 2 3 4 5 6 7 8 9 10 11 12 13	CABLE DETECT DDC SDA DDC SCL RED GND RED INPUT GREEN GND GREEN INPUT BLUE GND BLUE INPUT NC VERTICAL SYNC SYNC GND HORIZONTAL SYNC	

5.4.3 CN2: Key Connector

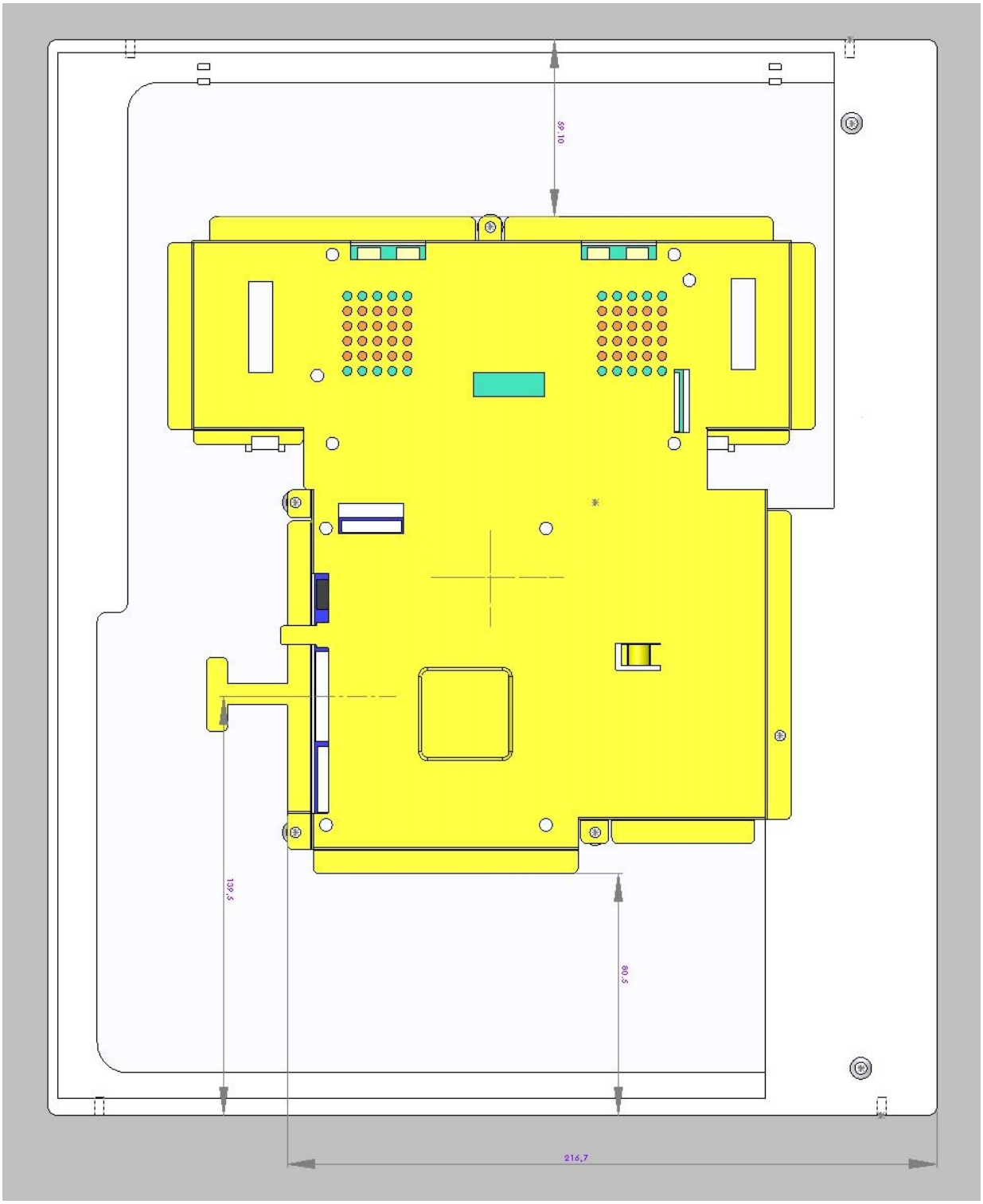
Part No.	Pin No.	Description	Remarks
53261-1490 (MOLEX)	1 2 3 4 5 6 7 8 9 10 11 12 13 14	LED2 LED1 GND POWER GND MENU RIGHT (Brightness +) NC NC LEFT (Brightness -) EXIT AUTO GND +3.3V (100mA)	 Option in 8 keys Option in 8 keys

6 Mechanical Specification

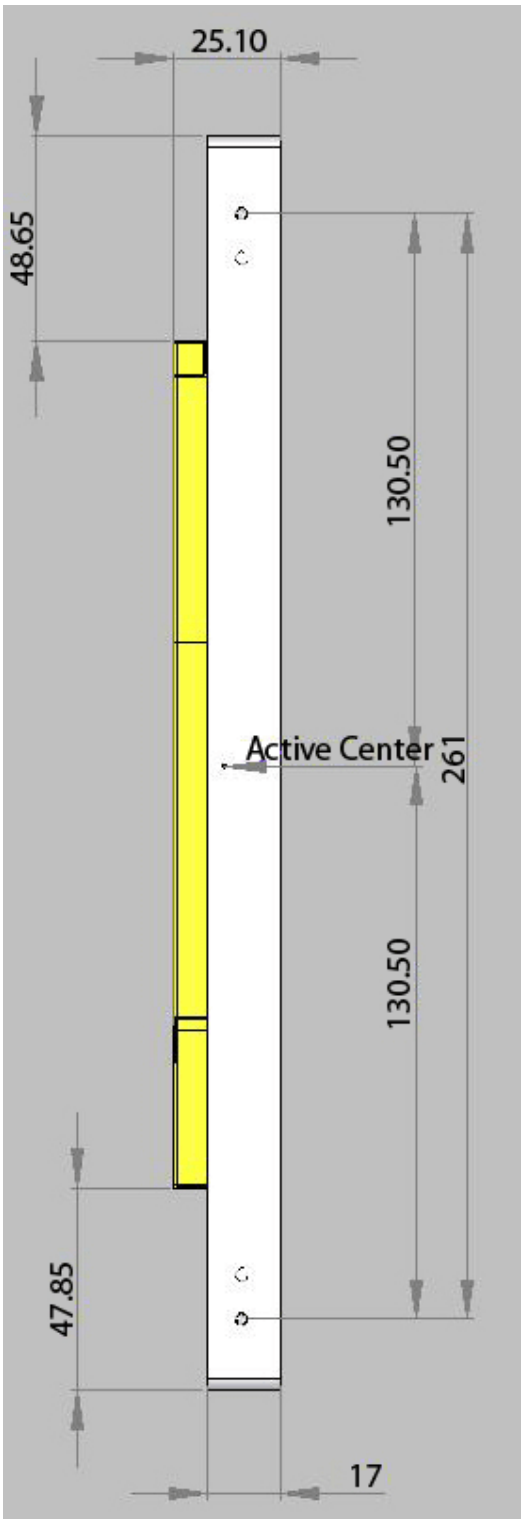
6.1 Front view



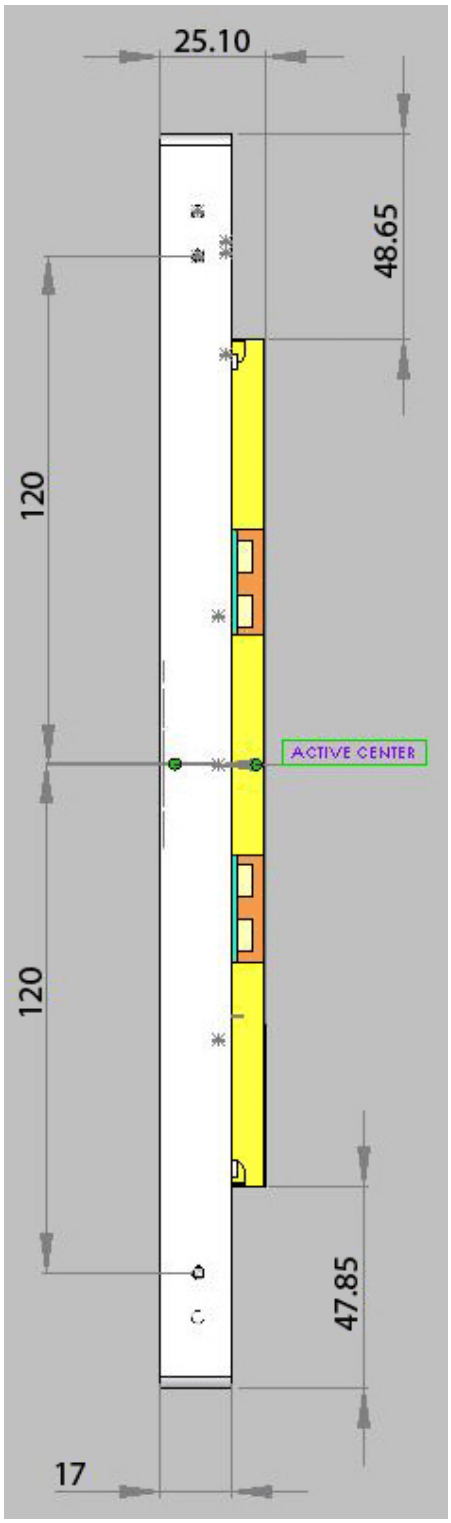
6.2 Back Side View



6.3 Side View 1



6.4 Side View 2



7 Operation Guide

7.1 Installation

This monitor is designed for RGB monitor using 17" TFT LCD panel.
This section provides some guidelines for assembly and preparation of a finished display solution.
Before proceeding, it is important to familiarize yourself with the parts making up a system and the various connectors, mounting holes and general layout of the monitor.
Please follow the below procedure.

1. **Appearance Inspection**
   Please check the monitor whether it is damaged in appearance or not during transportation.
   And assemble this monitor to your system or applications.
2. **Signal Inputs Connection**
   Analog input is available. Please refer to the clause 5.4 Connector
   Pin Assignment and connect the signal what you want to apply to the monitor.
   Especially, the Analog RGB cable may affect the visual characteristics and regulatory emission test. So, a suitably shielded cable should be used.
3. **Power Input Connection**
   Refer to the 5.4 Connector Pin Assignment and connect the power input cable to the monitor.
   Every connection is done but you should consider electrical insulation, grounding, EMI shielding and heat & ventilation.
4. **Apply Power**
   Apply power and turn on the monitor and refer to the following clause.

7.2 OSD Adjustment

DI170S01-A01 gives a various and very easy graphics interface to its users. Users have easy access to the functions that they want to adjust. Be sure that your system's power and LED are turned on, before the OSD controls are being used.

7.2.1 Key Name and Function

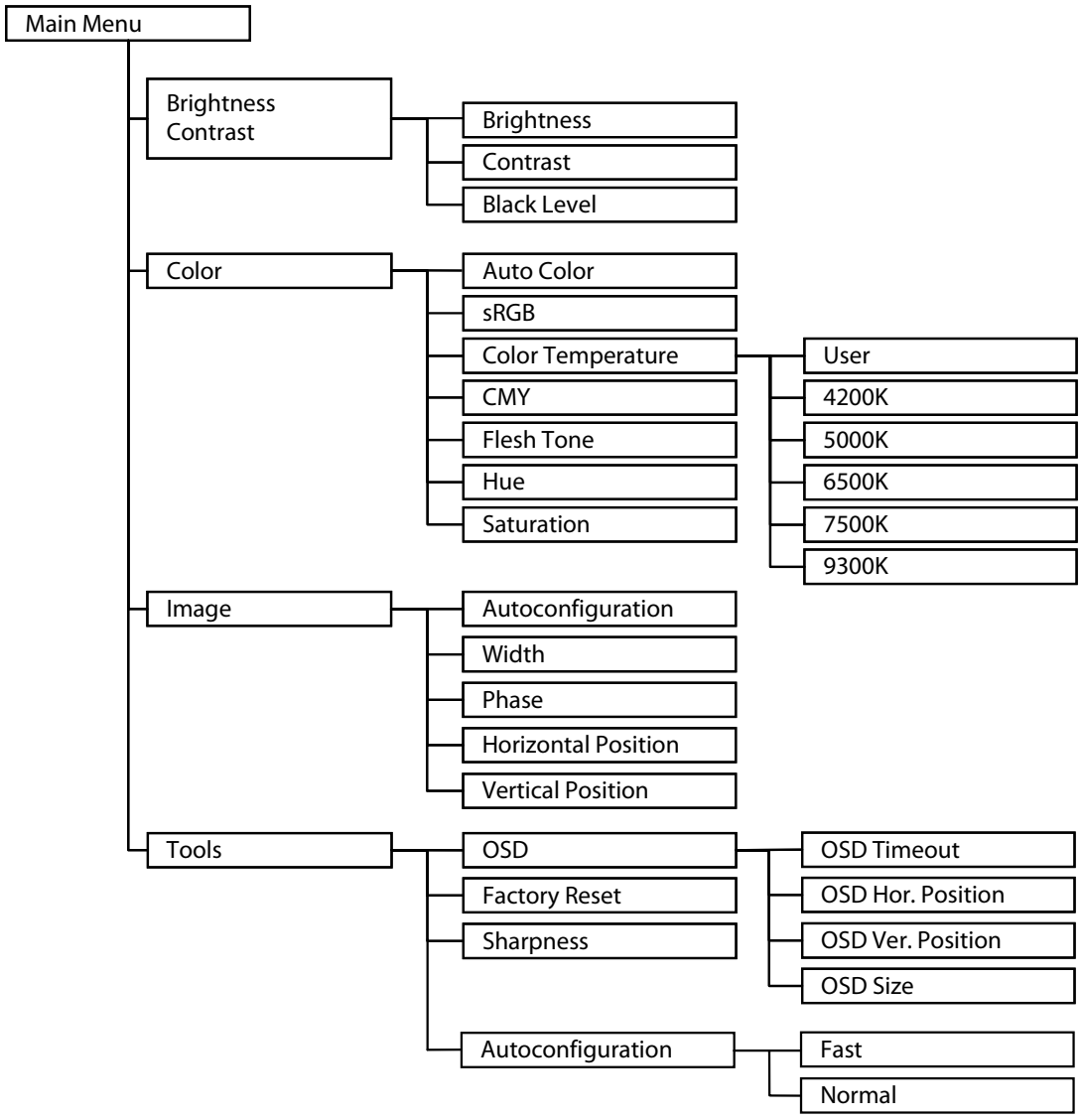
Key name	Description
Power	Turns ON/OFF the system
Menu	- Opens the main menu - Confirmation button for selected menu points - Back to the sub menu
Exit	- Goes directly to the exit icon, when the OSD main or sub menu is shown. The exit icon must still be confirmed via the Menu – button to leave the OSD menu!
Left	- Activates directly the brightness menu - To decrease setting bars - Menu icon selection to the left
Right	- Activates directly the contrast menu - To increase setting bars - Menu icon selection to the right

Accessing the menu system

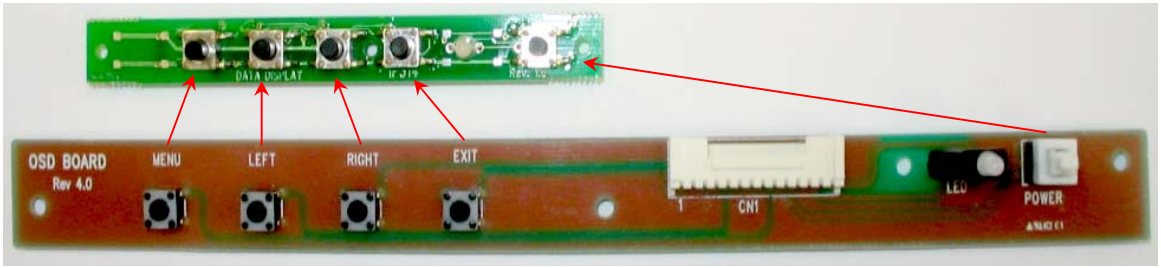
1. With the OSD off, push the **Menu** button to activate the main OSD menu.
2. Use the **Left** and **Right** buttons to move through the main menu. To select a desired sub menu, press the **Menu** button after your selection. The selection tabs are also highlighted and explained via onscreen text in the upper right of the OSD screen.

3. After selecting a sub menu, use the **Left** or **Right** buttons to move through the sub menu. To select a setting icon, press the **Menu** button after your selection. The selected icons are highlighted and explained via onscreen text in the lower right of the OSD screen.
4. There are two types of icons: Some have a single function and must be confirmed with the **Menu** button, the other option are setting bars. Once a setting bar appears, it can be increased or decreased via the **Left** and **Right** buttons. The setting bar moves and the numeric value indicator changes to reflect your adjustments. NOTE: The numeric value indicator is provided as a point of reference only and has nothing to do with a real measurement.
5. There are many ways to close the OSD menu:
   - Waiting some seconds (timeout). This time can be adjusted as needed in one of the menus.
   - In the main and sub menu, press the **Exit** button. This highlights the "Exit" icon in the menu. Then press the **Menu** button to leave the OSD menu.
   - After an Autoadjust and confirmation the OSD menu closes automatically.
   - After adjusting a setting, press the **Menu** button to go back to the sub menu, then press the **Exit** button or use the **Right** button to select the "Exit" icon. Confirm via the **Menu** button and the OSD turns off.

7.2.2 OSD Structure



7.2.3 Window structure



Available OSD controller boards

7.2.4 Detailed description of the On-Screen-Menu

The following paragraphs describe the OSM main and sub-menus and the associated functions.

Adjusted menu items will be saved if:

- the OSM is closed by selecting and confirming the Exit Menu icon
- toggling the sleep mode with the Power Key
- selecting the green smiley after Autoconfiguration in Color or Image menu
- resetting the color value to sRGB default

Brightness – Contrast

- **Brightness:** Adjusts display brightness. If supported, brightness will be regulated using the connected inverter.
- **Contrast:** Adjusts image contrast
- **Black Level:** Adjusts image black level

Color

- **Autoconfiguration:** Performs a calibration of the ADC for optimum colors. For best result, black and white level should be present in the image.
- **sRGB:** Return to default sRGB color values (also activates sRGB color space)
- **Color Temperature**: Allows you to choose different values for the color temperature including a user defined setting in RGB color space.
- **CMY:** Modify the proportion of cyan, magenta and yellow in the image (also activates CMY color space)
- **Flesh Tone:** Adjusts flesh tone of the image (requires sRGB color space)
- **Hue**: Adjusts hue of the image (requires sRGB color space)
- **Saturation**: Adjusts saturation of the image (requires sRGB color space)

Image

- **Autoconfiguration:** Optimizes the displayed image. Adjusts phase and image position automatically.
- **Width:** Adjusts image width.
- **Phase:** Adjusts image phase.
- **Horizontal position:** Adjusts horizontal image position.
- **Vertical position:** Adjusts vertical image position

Tools & OSD

- **OSD**
  - **OSD Timeout:** The OSD vanishes after a certain time of inactivity. Values of 2-16s are possible
  - **OSD Horizontal Position:** Adjusts position horizontally
  - **OSD Vertical Position:** Adjusts position vertically
  - **OSD Size:** Doubles size of OSD (only valid if display resolution is 2 times larger than the OSD size)

- **Factory reset:** Return to factory default values
- **Sharpness:** Modifies the image filtering with shrinking and expansion
- **Autoconfiguration Type**
  - **Fast:** Quick autoadjustment method (coarse adjust for fast resolution switching, like during bootup)
  - **Normal:** Standard autoadjustment method (fine adjustment once the system is displayed properly)

8 Appendix

8.1 Standard Timing Chart

Mode	Active Resolution	Total Pixels	Horizontal Frequency (KHz)	H-Pol.	Vertical Freq (Hz)	V-Pol.	Pixel Clock	Failsafe Mode
VGA	640x350 @ 85Hz	832x445	37,861	P	85,08	N	31,5	X
	640x400 @ 85Hz	832x445	37,861	N	85,08	P	31,5	X
	720x400 @ 85Hz	936x446	37,927	N	85,039	P	35,5	X
	640x480 @ 60Hz	800x525	31,469	N	59,94	N	25,175	
	640x480 @ 72Hz	832x520	37,861	N	72,809	N	31,5	
	640x480 @ 75Hz	840x500	37,5	N	75	N	31,5	
	640x480 @ 85Hz	832x509	43,269	N	85,008	N	36	X
SVGA	800x600 @ 56Hz	1024x625	35,156	N/P	56,25	N/P	36	
	800x600 @ 60Hz	1056x628	37,879	P	60,317	P	40	
	800x600 @ 72Hz	1040x666	48,077	P	72,188	P	50	
	800x600 @ 75Hz	1056x625	46,875	P	75	P	49,5	
	800x600 @ 85Hz	1048x631	53,674	P	85,061	P	56,25	X
XGA	1024x768 @ 60Hz	1344x806	48,363	N	60,004	N	65	
	1024x768 @ 70Hz	1328x806	56,476	N	70,069	N	75	
	1024x768 @ 75Hz	1312x800	60,023	P	75,029	P	78,75	
	1024x768 @ 85Hz	1376x808	68,677	P	84,997	P	94,5	X
	1152x864 @ 75Hz	1600x900	67,5	P	75	P	108	
SXGA	1280x1024 @ 60Hz	1688x1066	63,981	P	60,02	P	108	
	1280x1024 @ 75Hz	1688x1066	79,976	P	75,025	P	135	
EGA	640x350 @ 70Hz	800x449	31,469	P	70,086	N	25,175	
CGA	640x400 @ 70Hz	800x449	31,469	N	70,086	P	25,175	
DOS	720x350 @ 70Hz	900x449	31,469	P	70,087	N	28,322	
DOS	720x400 @ 70Hz	900x449	31,469	N	70,087	P	28,322	
XGA	1024x768 @ 72Hz	1304x798	57,515	P	72,1	P	75	
XGA	1024x768 @ 87Hz(i)	1264x817	35,522	P	43,479	P	44,9	
	640x480 @ 67Hz	864x525	35	N	66,667	N	30,24	
SVGA	832x624 @ 75Hz	1152x667	49,725	N	74,551	N	57,283	X
XGA	1024x768 @ 60Hz	1312x813	48,78	N	60,001	N	64	
SXGA	1280x1024 @ 60Hz	1708x1056	63,337	N	59,978	N	125	
	1280x1024 @ 72Hz	1728x1085	78,125	N	72,005	N	135	
SXGA	1280x1024 @ 67Hz	1696x1056	70,755	N	67,003	N	120	
	1280x960 @ 60Hz	1800x1000	60	P	60	P	108	
	1280x1024 @ 85Hz	1728x1072	91,146	P	85,024	P	157,5	X
	1280x960 @ 85Hz	1728x1011	85,934	P	85,002	P	148,5	X
VGA	640x400 @ 56Hz							
	1152x864 @ 70Hz	1600x900		P	70	P		
UXGA	1600x1200 @ 60Hz							X
	1280x768 @ 60Hz							
	1280x720 @ 60Hz							