Appendix E - User's Manual



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TFT LCD Monitor

FCC NOTICE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.

OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED OPERATION.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a oircuit difference from that to which the receiver is connected.
- Consult the dealer of an experienced radio/TV technician for help.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

TFT COLOR LCD MONITOR

User's Guide

How to got the most enjoyment with monitor

This is a 15.1" color LCD monitor to display signals from PC or Video equipment. This manual has been prepared to assist you in becoming familiar with your new display monitor.

Features

- * 15.1" viewable XGA (1024 X 768) resolution LCD module
- * 262,144 Color Display
- * Brightness (200cd/m²)
- * DPMS (Display Power Management Signaling)
- * OSD (On screen Display) controls, Multi Language OSD Menu
- * Implement th DDC 1/2B features.

DDC 1/2B uses a formerly unconnected signal pins in the 15-pin VGA connector.

The system will perform "Plug&Play" feature if both monitor and host systems support DDC 1/2B protocol.

Note

Some computer systems are not compatible with the DDC standard. Ifyour monitor is displaying a wrong resolytion, please check your computer system inclyding a DDC compatible video card and contact SAMKUNG Serveice Center.

General Safety precautions

This Monitor has been engineered and manufactured to assure your safety, and you can prevent your safety from serious electrical shock and other hazards by keeping in the following attentions.

- 1. Do not place heavy, wet or magnetic on the monitor or the power cord. Never cover the ventilation openings with any material and never touch them with metallic of inflammable materials.
- 2. Avoid operating the monitor in the place extremely heated, humid or affected by dust.

Temperature : $0 - 40^{\circ}$ C Humidity : 30 - 80RH

- 3. Be sure to turn the monitor off before plugging the power cord into the socket of power source. Make sure that the power cord and the other cords are securely and rightly connected.
- 4. Overloaded AC outlets and extension cords are dangerous. So are frayed power cords and broken plugs. They may result in a shock or fire hazard. Call your service technician for replacement.
- 5. Do not use the sharp tool such as pin or pencil to avoid the scratch on the LCD surface.
- 6. Do not use the solvent such as benzene to clean the monitor. It will damage to LCD surface.

Maintenance

Do not open the monitor. There are no user serviceable components inside. There is dangerous high voltage inside, even when power is off. If the display monitor does not operate properly, remove the power cord from the wall outlet, and contact your dealer. Careless use and un-professional maintenance are able to cause serious electrical shock and other hazards.

Video input terminal

A 15 pin D-sub connector is used as the input signal connector. Pin and input signs are shown in the table below

Pin	Signal name	Pin	Signal	Pin	Signal name	
number	Signal name	number	name	number	Signar Haine	
1	Red	2 Green		3	Blue	
4	NC	5	GND	6	Red-GND	
7	Green-GND	8	Blue-GND	9	+5V	
10	Logic-GND	11	NC	12	SDA(DDC)	
13	H-Sync	14	V-Sync	15	SCL(DDC)	

OSD Control Procedure

■ Main menu & control selection

Press the MENU key to access the main menu.

The power LED is blinking.

Please the select MENU Icon the control function you wish to adjust by the \triangleleft or \triangleright key.

■ Exit Menu

Press the MENU key to exit.

The power LED is lit green,

■ Auto EXIT

The OSD images are disappeared automatically after few seconds inactivity.

■ Auto save

The monitor automatically saves the new setting while OSD is exit.

■ Normal mode

When video signal is working with normal display condition, power LED is lit Green.

■ DPMS mode

The LED indicates different status when this unit operates in different power saving modes.

■ Not Supported Video

When unsuitable signal is detected, the OSD displays: Not Supported Video" message.

Using Hotkey

Frequent adjustments such as AUTOMATIC ADJUSTMENT, BRIGHTNESS and CONTRAST can be done in easy without using MENU key which display all of the control menu.

Following table describes the allocation of the HotKey

OSD	Function
(8)	Automatic Adjustment
\triangleright	Contrast
<	Brightness

Auto Adjustm	ent								
11400 114Jubbin	Automatically adjust the Vertical position,								
Geometry	Horizontal position, Horizontal size and								
	Phase								
	Automatically adjustment the contrast of the								
Color Balance									
Horizontal	screen								
Position	Adjust the Horizontal position								
Vertical									
	Adjust the Hertical position								
Position Horizontal									
	Adjust the with of the screen's image								
Size									
Phase	Adjust the noise of the screen's image								
Brightness	Adjust the intensity of the screen								
Contrast	Adjust the contrast of the screen								
Color									
Temperature	Adjust the color temperature of the screen's								
	image								
Red	Control the intensity of Red color of the								
	screen's image								
Green	Control the intensity of Green color of the								
	screen's image								
Blue	Control the intensity of Blue color of the								
Diue	screen's image								
OSD									
Language	Language								
English	English								
French	French								
German	German								
Italian	Italian								
Spanish	Spanish								
Advanced									
Factory Preset	Load the factory preset mode								
Sharpness	Adjust the sharpness of the screen's image								
DOS/GFX	Select resolution 720X400 or 640X400 mode								
OSD H	'Adiana the headerstal accidence 6.41 CCD								
Position	Adjust the horizontal position of the OSD								
OSD V	• • • • • • • • • • • • • • • • • • • •								
Position	Adjust the vertical position of the OSD								
Cancel	Cancel								

Input timing limits

H-Sync pulse width 1.0us≤Sync Pulse Width≤8.0us V-Sync pulse 0.04ms≤Sync Pulse Width≤0.5ms

Note

If the width of Sync pulse is out of input timing range, monitor may be able to operate abnormal. Be sure to check the sync pulse width of input timing.

Input level limits

Low level : 0.4 V max High level : 2.4 V min

Note

For better quality of display image, use the timing and polarity shown in the preset mode table. Please see your video card user's guide to ensure compatibility.

Preset Mode Table

The timing shown in the following table will be factory preset for display.

Horizontal	Pixel	640	720	640	640	640	640	800	800	800	800	1024	1024	1024	1024
Freq	KHz	31.46 9	31.46 9	31.46 9	37.50 0	37.86 1	35.00 0	35.15 6	37.87 9	46.07 7	48.07 7	48.36 3	56.47 6	60.023	57.928
Period(T1)	μs	31.77 8	31.77 8	31.77 8	26.66 7	26.41 3	28.57 1	28.44 4	26.40 0	21.33 3	20.80	20.67	17.70 7	16.660	17.247
Sync Width(T2)	μs	2.542	3.813	3.813	2.032	1.270	2.116	2.000	3.200	1.616	2.400	2.092	1.813	1.219	1.662
Back Porch(T3)	μs	3.178	1.907	1.907	3.810	3.810	3.175	3.555	2.200	3.232	1.280	2.462	1.920	2.235	2.078
Active(T4)	μs	25.42 2	25.42 2	25.42 2	20.31	20.31 7	21.16 4	22.22	20.00	16.16 2	16.00 0	15.75 4	13.65 3	13.003	13.299
Front Porch(T5)	μs	0.635	0.635	0.635	0.508	0.762	2.116	0.667	1.000	0.323	1.120	0.369	0.320	0.203	0.208

Vertical	Line	350	400	480	480	480	480	600	600	600	600	768	768	768	768
Freq	Hz	70.08 7	70.08 7	59.94 0	75.00 0	72.80 9	66.66 7	56.25 0	60.31 7	75.00 0	72.18 8	60.00 4	70.06 9	75.029	72.117
Period(T1)	ms	14.26 8	14.26 8	16.68 3	13.33 3	13.73 5	15.00 0	17.77 8	16.57 9	13.33 3	13.85 3	16.66 6	14.27 2	13.328	13.866
Sync Width(T2)	ms	0.095	0.064	0.064	0.080	0.079	0.086	0.057	0.106	0.064	0.125	0.124	0.106	0.050	0.121
Back Porch(T3)	ms	1.905	1.080	1.048	0.427	0.528	1.110	0.626	0.607	0.448	0.478	0.600	0.513	0.466	0.448
Active(T4)	ms	11.13 6	12.71 1	15.25 3	12.80 0	12.67 8	13.71 4	17.06 7	15.84 0	12.80 0	12.48 0	15.88 0	13.59 9	12.795	13.246
Front Porch(T5)	ms	1.145	0.413	0.318	0.027	0.238	0.086	0.028	0.026	0.021	0.021	0.062	0.053	0.017	0.086
Interlaced	Y/N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sync	Н	P	N	-	-	i	ı	_	ı	_	-	İ	İ	-	-
Polarity	V	N	P	-	_	-	_	_	_	-	_	-	-	-	-

Microcontroller features

The microcontroller automatically detects the video board installed in your system. When you turn on the monitor, the Micro controller first checks the display mode memory stored in the user setting area and the factory presetting area.

Display modes memory

The microcontroller has memory capacity to store 24 different display modes including timing formats and display settings. This memory capacity is divided into two parts. One is the user setting area, the other is the factory presetting area.

User setting area

The user can add nonstandard modes. If you adjust display Image, the image is saved automatically. Then the microcontroller always detects and displays the last mode stored in the user setting area when the monitor is turned on. The user setting area maintains the last 6 display modes set by the user in its memory. When the user setting area is full (6 modes are registered), if new nonstandard timing is registered, the oldest timing settings will be deleted.

Factory presetting area

There are 14 display modes stored in this area. These display modes are preset at the factory and include most of the display modes currently available (see Timing Chart of this manual).

You can also retrieve the factory preset mode by selecting the RECALL menu.

Automatic save

The monitor automatically saves the setting value after certain times (20sec) of adjusting OSD menu.

Power management

This monitor equipped with DPMS (Display Power Management Signaling) function which automatically leads the monitor to the state of power saving that consumes just a little power less than 5 Watt, when the computer is left unattended.

Although the monitor can be left in power-saving mode for longer periods, we recommend that you turn it off after your daily work

Operation

The DPMS function requires support from the computer system of any software DPMS function applied, currently being used. If the keyboard (or mouse) is left unattended for a certain period, the program or system will set the sync signals to DPMS modes. The DPMS function has three status.

The recommended signals, power consumption and recovery times are shown in the table below.

Status		signal		Power	Recovery	LED Indicator	
Status	Hsync	Vsync	Video	Consumption	Time		
On	Pulse	Pulse	Pulse	25Watt(Max)		Green	
Standby	No Pulse	Pulse	Blank			Alternating	
Suspend	Pulse	No Pulse	Blank	Less than 5Watt	Within 2sec	Green/Orange(.5sec)	
Off	No Pulse	No Pulse	Blank			Off	

	Type	TFT Color					
	Size	15.1" viewable diagonal					
LCD	Dot Pitch	0.300 X 0.300 mm					
LCD	Brightness	200cd/m² (Typ)					
	Response Time	40msec Max					
	viewing Angle	U/D: 45 °/45 °, R/L: 60 °/60 °					
Input	Signal	RGB Analog					
Input	Туре	15pin D-sub					
Sync	H-Freq	31 ~ 60KHz					
Sync	V-Freq	56 ~ 75 Hz					
Video	o Band Width	80MHz Max					
Display	Active Area	307.2 X 230.4mm					
Display	Color	262.144(Normal), 16.777.216(Expansion)					
Reso	lution(Max)	1024 X 768@75Hz					
User Contro	ols & OSD Controls	Contrast, Brightness, H/V Position etc.					
Power	r Management	As per VESA Standard					
Power	Consumption	25Watt (Max)					
P1	ug & Play	VESA DDC1/2B					
Tilt	U/D	35 ° / 5 °					
Temperature	Operating	0 to 40 °C					
Temperature	Storage	-10 to 50 °C					
Humidity	Operating	30% to 80% (Non-condensing)					
Humidity	Storage	5% to 90% (Non-condensing)					
Weight	Unit	4.2Kg					
weight	Carton	6.1Kg					
Dimension	(WXHXDmm)	393 X 190 X 393mm					