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PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

ELFA artikelnr
25-307-23 TFT-monitor LMU-TK12AT

[TENTATIVE]

Specification

12-inch analog LCD Color Monitor with Touch Screen

LMU-TK12AT

DATE : July/ 05/1999
APPROVED BY :
PREPARED BY : Engineering Section No. 2
Engineering Department No. 1

Tottori SANYO electric Co., Ltd.
Information & Communication Division

1. Application limit

This specification is applied to a liquid crystal display color monitor, LMU-TK12AT, which is designed and manufactured by Tottori SANYO Electric Co., Ltd. ,Information & Communication Division, and delivered to SANYO Electric Trading Co., Ltd..

2. Features

The expansion display smoothing function displays expanded images beautifully into SVGA (800 x 600 dots) even from VGA input signals.
Easy to use; the automatic adjustment function automatically controls display position and other settings.
Consumes only 20W maximum, that is about 1/3 the power of conventional 14-inch CRT monitors.

Touch panel
Speedy and precise response in soft touch operation.
Strong against water, oil, etc.
Long life with more than 20Million touch.

3. Electric

3-1. LCD Panel

ITEM	SPECIFICATION	UNIT
Driver element	a-si TFT active matrix	
Number of pixel	800 x 600	pixel
Pixel pitch	0.3075(H) x 0.3075(W)	mm
Pixel arrangement	RGB vertical stripe	
Display area	184.5(H) x 246.0(W)	mm
Module size	199.0(H) x 275.0(W) x 6.9max.(D)	mm
Brightness	200	cd/m^2
Response time	50 typ.	msec
Contrast	150 : 1 typ.	
Viewing angle	Up: 10, Down: 30, Right: 45, Left: 45	deg.

3-2 Back-light unit

ITEM	SPECIFICATION	UNIT
Type	CCFL	
Lamp current(I_L)	3.0 - 6.0	mArms
Lamp frequency(f_L)	50kHz typ.	kHz

3-3 Touch panel

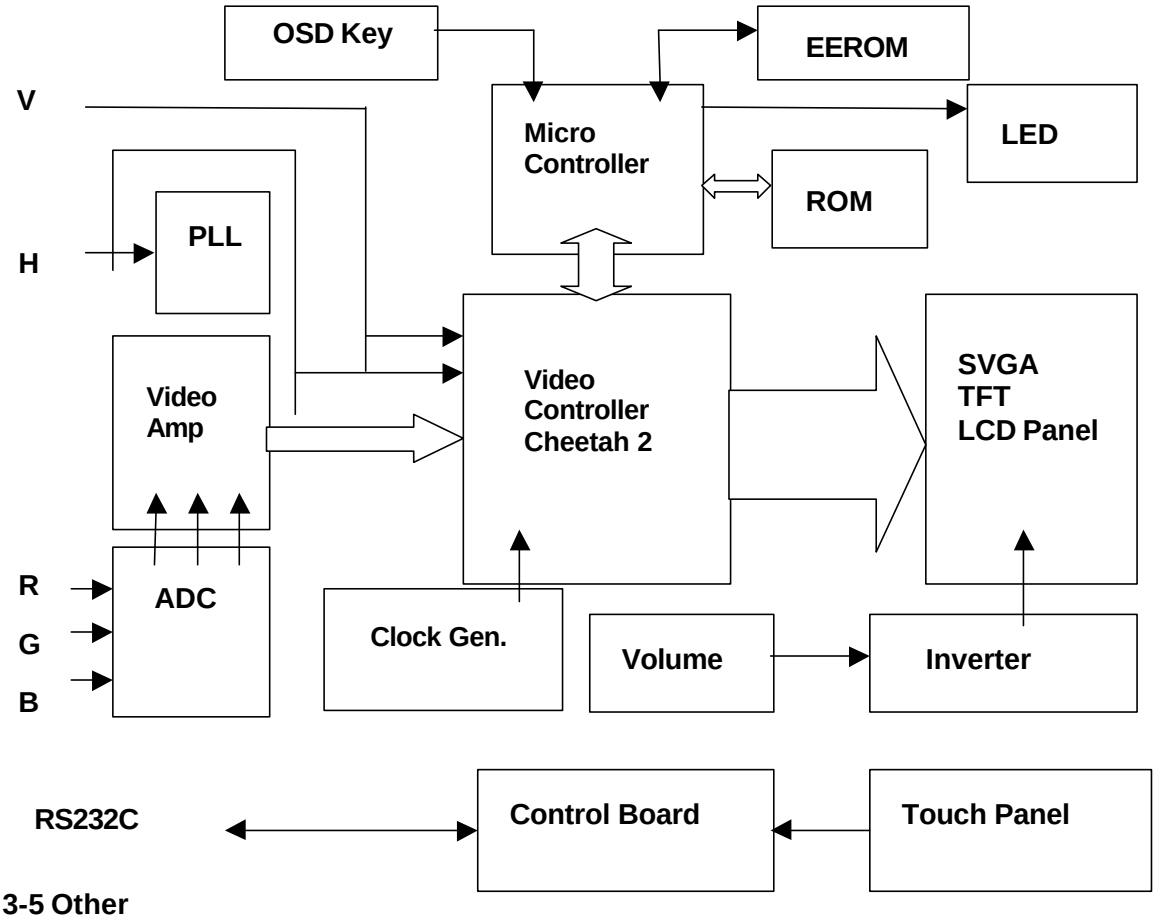
ITEM		SPECIFICATION	UNIT
Type		Resistive	
Electrical resolution		1024 x 1024	
Response time		15 ms	ms
Interface	Communication	Serial RS232C	
	Baud late	1200, 2400, 4800, 9600, 19200	BPS
	Data bit	7 or 8	bit
	Stop bit	1 or 2	bit
	Parity bit	None, Odd, Even	

3-4 Control

CPU
8bit Microcontroller

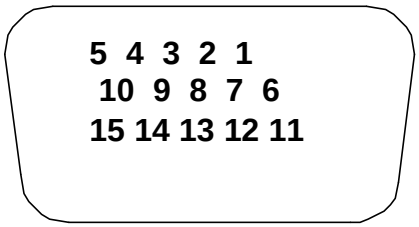
Gate Array
Sage original Gate Array
Touch panel control board
Microtouch

Block diagram



3-5 Other Connector

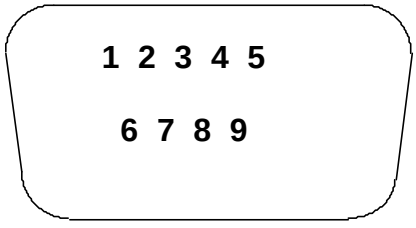
RGB : 15pin min-DSUB



No	Signal	No	Signal	No	Signal
1	R(Red)	6	GND R(Red)	11	------
2	G(Green)	7	GND G(Green)	12	Data Line(SDA)
3	B(Blue)	8	GND B(Blue)	13	Horizontal sync.
4	------	9	-------	14	Vertical sync.
5	DDC GND	10	GND	15	Clock Line(SCL)

RS232C : 9pin DSUB

No	Signal	No	Signal
1	--------	6	-------
2	RXD	7	RTS
3	TXD	8	CTS
4	------	9	-------
5	GND		



External OSD Key : 4pin

No	Signal	No	Signal
1	MENU	4	UP
2	SELECT	5	GND(Flame)
3	DOWN		

DC input : 2pin DC jack
EIAJ Type IV

Volume
Brightness Control : Used to adjust the brightness of the display.

Power Switch
Turn the power to the monitor on and off.

OSD(On Screen Display) Control Box --- Adjustment Buttons
The buttons on the OSD Control Box are used to select and operate the adjustment.
[MENU] Key
Used to display and change menu screens.
[SELECT] Key
Used to select menu items.
[Down] and [Up] Keys
Used to move the cursor between adjustment items and change adjustment values.

3-6 Input voltage
DC12.0V +/- 10%

3-7 Power Consumption
20W(5W in Energy Saving mode)

3-8 AC Adapter
Model Name : ADP35WB12
Input : AC 100 - 240V, 50 - 60Hz
Output : DC 12.0V, 2.6A

4. Mechanical

4-1 Dimensions
295(W) x 42(H) x 233(D) mm

4-2 Weight
2.0Kg

5. Carton

5-1 Dimensions
370(W) x 305(D) x 170(H) mm

5-2 Weight
4.1Kg (With LCD monitor and accessories)

6. Functions

6-1 Display Mode

Table of Preset Settings

The thirteen signal timing patterns indicated in the tables below are preset when the monitor is shipped from the factory. Up to 7 additional timing pattern can also be stored. The timing pattern is automatically determined and displayed according to the synchronous signals of the computer being used. The monitor will use the closest timing pattern for display when a perfectly matched one is not available.

Resolution	800 x 600	800 x 600	800 x 600	800 x 600	800 x 600
Type	SVGA	SVGA	SVGA	SVGA	SVGA
Vertical Frequency(Hz)	75.0	72.0	70.0	60.0	56.0
Horizontal Frequency(kHz)	46.9	48.1	47.8	37.9	35.1

Resolution	640 x 480	640 x 480	640 x 480	640 x 480	640 x 480
Type	VGA	VGA	VGA	VGA	VGA
Vertical Frequency(Hz)	75.0	73.0	70.0	66.0	60.0
Horizontal Frequency(kHz)	37.5	37.8	37.1	35.0	31.5

Resolution	640 x 400	640 x 400	640 x 350
Type	IBM VGA	VGA	IBM VGA
Vertical Frequency(Hz)	70.0	56.0	70.0
Horizontal Frequency(kHz)	31.4	24.8	31.4

Number of color : 16.19million

6-2 Adjusting the Display

Adjustment Items.

AUTO ADJUST: Automatically adjusts the screen.
Adjustment may not be able to be performed correctly depending on the computer it is connected to during automatic adjustment. If it is not correct, adjust it manually with the OSD.

DOT-CLOCK: Adjusts the width of the display.
Insufficient adjustment of DOT-CLOCK could lead to the display distortion or flickers.

H-POSITION: Adjusts the horizontal display position.

V-POSITION: Adjusts the vertical display position.

PHASE: Gets rid of the display flicker on the screen.
PHASE must be adjusted even if automatic adjustment has been performed.

Adjustment Items(Sub-menus)

LEVEL: Adjusts the screen's overall color level and brightness.
Sometimes colors or gradation are not displayed properly depending on the computer it is connected to. Adjust the balance of individual colors in such a case.

R-LEVEL: Adjusts the red level.

G-LEVEL: Adjusts the green level.

B-LEVEL: Adjusts the blue level.

ALL CLEAR: Cancels the levels set on this screen and returns all values to those set when the monitor was shipped from the factory.

6-3 Power management

Three conditions are defined as Power Status.

Operation Mode: Power supplies of all devices are turned on.

Stand-by Mode: Only minimum power supplies such as Input signal observation circuit are turned on, while Power supplies of Liquid crystal display and Back light are turned off.

Off Mode: Power supplies of all devices are turned off.

Standard: Bases on VESA, DPMS

VESA: Video Electronics Standards Association

DPMS: Display Power Management Signaling

Transit condition: When VSYNC or HSYNC signals is not transmitted, the mode transits from Operation Mode to Stand-by Mode.

6-4 Plug and play

Standard: Corresponds to VESA , DDC1 and DDC2B.

When a product is connected to a computer which corresponds to the standards, the computer confirms the product's information and establishes the optimum display value for the product automatically.

(DDC stands for display data channel and is a registered trade mark of VESA.)

6-5 Others

Deleting data

It is possible to delete all stored Display Mode data for the current mode.

It is not possible to delete the data which is preset when manufacturing.

Data display

It is possible to indicate input signal data.

7.Standards

Safety : UL, cUL, CE (Self declaration)

EMC : FCC Class B (Self declaration), CE Class B (Self declaration)

8. Environmental

8-1 Temperature

Operating : 5°C to 40°C

Storage : -10°C to 50°C

Transport : -20°C to 60°C

8-2 Humidity

Operating : 30%RH to 85%RH(non-condensing)

Storage : 10%RH to 85%RH(non-condensing)

Transport : 10%RH to 85%RH(non-condensing)

8-3 Non Operating Random Vibration Test (Packaged)

Frequency : 2 - 300Hz

Acceleration : 0.519gRMS

Time : 30minutes

8-4 Packing Drop Test

Height : Corner and Edge 48cm

Face 60cm

1 Corners - 3 Edges - 3 Faces

9. Electrical Inspection of LCD Panel

Defect Type	Accept	Reject
Bright dot		
Random	**N<=5**	**N>5**
Two adjacent **Three or more adjacent**	**N<=2** **Not allowed**	**N>2** **Not allowed**
Dark dot		
Random	**N<=5**	**N>5**
Two adjacent	**N<=2**	**N>2**
Three or more adjacent	**Not allowed**	**Not allowed**
Maximum allowable of dot defect	**N<=10**	**N>10**

10. Special note

If dissent from this specification occurs, the dissent shall be settled by a consultation between SANYO Electric Trading Co., Ltd. and Tottori SANYO Electric Co., Electronic Office Products Division.

Swedish Representative Office
Martinsson Elektronik AB
Box 9060
S-126 09 Hägersten
Tel: +46-8-7440300
Fax: +46-8-7447922