Engineering Specification

Model No. EFL-1703XUIT

17inches High resolution LCD Monitor

- AUO TN TFT LCD Panel with LED Backlight
- High performance up-Scaling characteristic
- Automatic Scanning
- High Speed Response
- Enhanced Video Quality
- Test Pattern for Burn-in & Self Check
- Built in 3M Capacitive Touch Screen
- 2 Inputs(VGA, DVI)
- 12V DC Input
- RoHS Compliance

Record of revisions.

Date	Rev. No	Page	Description	Issued by
02/22/2016	N1.0		First Draft (Preliminary) Issued	

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1. GENERAL DESCRIPTION

1-1. Overview

Effinet open frame LCD Monitor EFL-1703XUIT is a high performance TFT LCD monitor providing high quality image from the analog RGB and DVI inputs with 3M capacitive touch screen.
This monitor supports wide range signal input from VGA to SXGA resolution at vertical refresh rate of 60 to 75Hz. It includes integrated signal processing unit, named LSP (LCD Signal Processor), which had all electronic function for user application.
It is designed for industrial use with Auto power on, up scaling performance adequate for low-resolution application and enhanced design margin for reliability

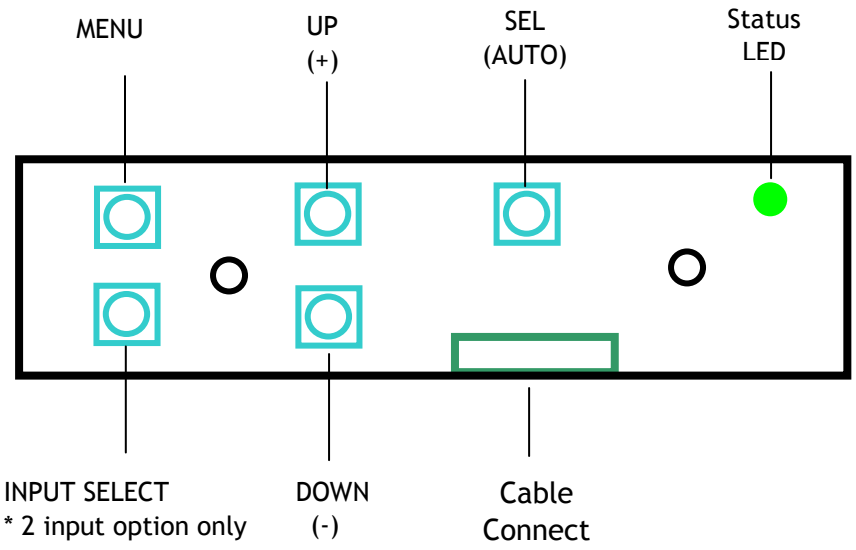
1-2. Quick reference table of Characteristics

Panel	Size	17” Diagonal
	Active Display Area	337.92 x 270.336 mm
	Type No.	AUO, M170ETN01.1
	Number of Pixels	1280 (H) x 1024 (V)
	Pixel Arrangement	RGB Vertical Stripe
	Pixel Pitch	0.264 mm x 0.264 mm
	Color Depth	16.7M True Color
	Surface Treatments	Anti-Glare, Hard -coating (3H)
	Viewing Angle (CR≥10)	Horizontal : ΘL + ΘR 170 degrees Vertical : Φ H + Φ L 160 degrees
	Contrast Ratio	Typ. 1000 : 1
	Response Time(Typ.)	Rising + Falling time(tr+tf) : 5 ms
	Average Brightness	Typ. 250 cd/ m^2
	Frame Rate	Typ. 60Hz, Max. 75Hz
	Panel Dimension(WHD)	358.5 x 296.5 x 10.3 mm
	CCFT	LEDs

Scanning Frequency	Horizontal	38 ~ 68KHz
	Vertical	50 ~ 75Hz
Resolution	Prime	1280 x 1024 @ 60 Hz
	Standard	720x400 @70 Hz, 640x480 @60/67/72/75 Hz 800x600 @56/60/72/75 Hz 1024x768 @60/70/75 Hz 1280x1024 @60/75 Hz
Input Signal	VGA (Video / Sync)	RGB Analog (0.7Vp-p, 75ohms) / H/V Separate(TTL)
	DVI	TMDS Links
Sync	Type	Separate H/V sync, Composite, SOG(Sync-On-Green)
	Level	TTL level (V high ≥ 2.0V, V low ≤ 0.8V)
	Polarity	Positive or Negative
Input Signal Interface	VGA	15pin D-Sub
	DVI	24Pin D-Sub
Power	DC Input	12V
	Max.power dissipation	15Watts
	Adaptor Rating	12V 5A (60Watts)
	Adaptor Plug Type	ID; 2.5mm, O.D; 5.5mm
Regulation(Safety , Ergonomics, EMC)		CUL, FCC, CE
Environmental Conditions	Operating	Temperature : 0 to 50°C / Humidity : 5 to 90%
	Storage	Temperature : -20 to 60°C / Humidity : 5 to 90%
White Color Temperature		6500°K : CIE x=0.313±0.02 / y=0.329±0.02
Demonstrated MTBF		More than 30,000 hours
Touch Screen	Touch Screen	17-8901-226
	Controller	EXII-7760UC
	Controller Interface	USB Interface
	Maker	3M
Cables/Leads		No power lead, DVI/VGA cables are required to be supplied with the unit.

2. USER CONTROL & OSD

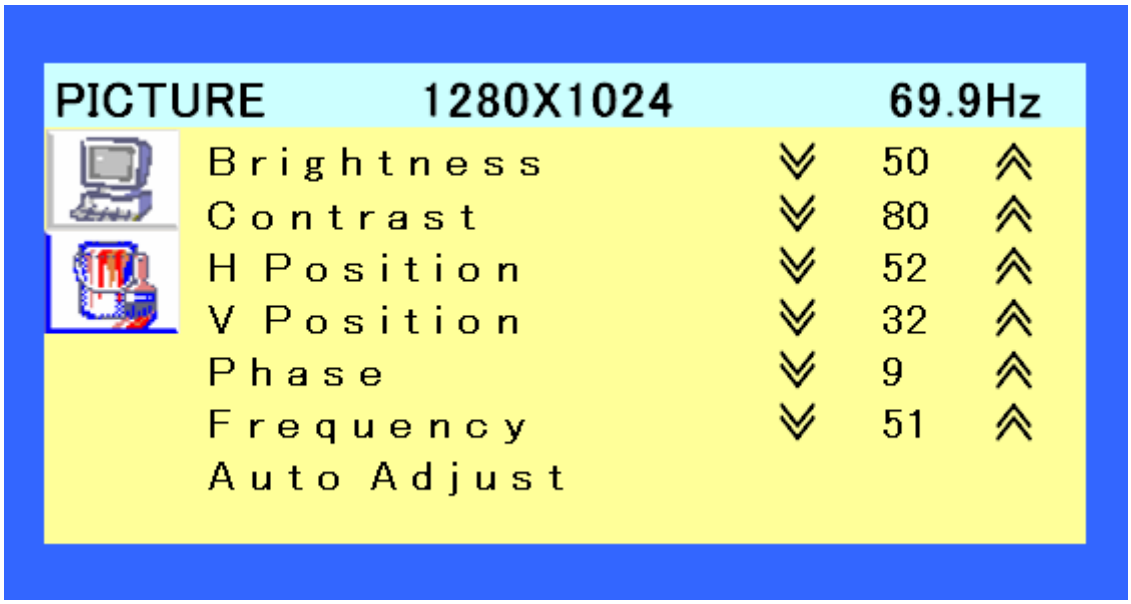
2-1. Key Control Board



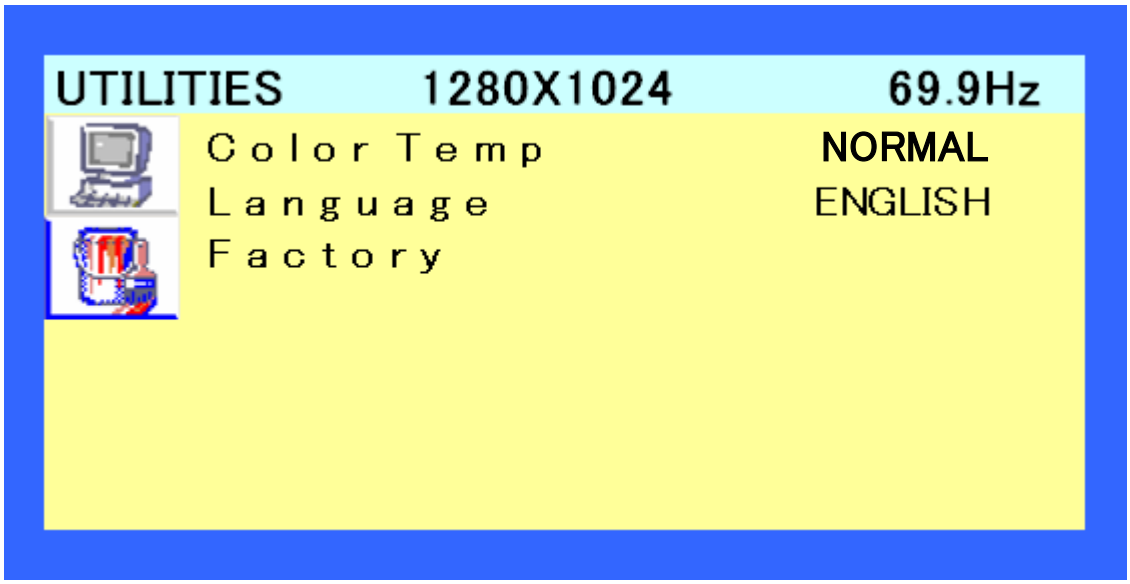
SWITCH NAME	SWITCH FUNCTIONS
MENU	▪ Activate / Deactivate the OSD Menu Window. ▪ Move cursor to Sub Menu from Main menu.
SEL (AUTO)	▪ Move cursor in the Sub-Menu(Brightness ↔ Mode) ▪ **Auto Tracking** (Pressing "SEL" key)
UP(+)	▪ Move cursor at Main Menu(Picture / Utility) ▪ Increase the value of the selected function
DOWN(-)	▪ Move cursor at Main Menu(Picture / Utility) ▪ Decrease the value of the selected function.
INPUT SELECT	▪ Select the input signal (VGA → DVI → VGA…) ▪ When power off / on, the last memorized input mode will be displayed.

2-2. OSD Menu Screen

- Picture OSD



- Utility OSD

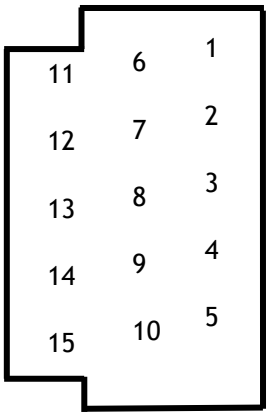


2-3. OSD Control Functions

CONTROL	FUNCTION
Auto Tracking	Automatic screen adjustment process. **If there is any noise on the screen or screen shift, just press " SEL" button.** **Since this monitor is equipped with "Auto Tracking" function, it will automatically configure the monitor setting.**
Brightness	Adjust the brightness level of the Display
Contrast	Adjust the contrast level of the Display.
H position	Adjust the position of the display horizontally.
V position	Adjust the position of the display vertically.
Phase	Adjust the clock phase of the display.
Frequency	Adjust the clock frequency of the display
Color Temp	Change color temperatures Adjust the Red/ Green / Blue Gain
Language	Select the OSD language
Self Test Pattern	To enter auto burn-in mode, press "Up" key first and then "Sel" key simultaneously for 3 seconds. On this mode, Red – Green – Blue – White – Black test pattern will be displayed. Press Menu key for returning normal display mode.

3. CONNECTOR PIN DESCRIPTIONS

3-1. 15 Pin D-SUB Connector

Shape and pin number	Pin	Description	Pin	Description
	1	Red	9	No Connection
	2	Green	10	Ground - Sync
	3	Blue	11	No Connection
	4	Ground	12	DDC-SDA
	5	Ground	13	Horizontal Sync
	6	Ground - Red	14	Vertical Sync
	7	Ground - Green	15	DDC-SCL
	8	Ground - Blue		

3-2. DVI PIN Configuration

Pin	Symbol	Pin	Symbol	Pin	Symbol
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	TDMS Data2 Shield	11	TDMS Data1 Shield	19	TDMS Data0 Shield
4	No Connection	12	No Connection	20	No Connection
5	No Connection	13	No Connection	21	No Connection
6	DDC Clock	14	+5V Power	22	TDMS Clock Shield
7	DDC Data	15	Ground (H/V Sync, 5V return)	23	TDMS Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	TDMS Clock-

4. STANDARD DISPLAY MODE

No.	Mode	Resolution	Horizontal		Vertical		Pixel clock
			Frequency	Polarity	Frequency	Polarity	
1	VGA	720 x 400	31.47 KHz	N	70.0 Hz	P	28.322 MHz
2		640 x 480	31.47 KHz	N	60.0 Hz	N	25.175 MHz
3		640 x 480	35.00 KHz	N	66.7 Hz	N	30.240 MHz
4		640 x 480	37.86 KHz	N	72.8 Hz	N	31.500 MHz
5		640 x 480	37.50 KHZ	N	75.0 Hz	N	31.500 MHz
6	SVGA	800 X 600	35.16 KHz	N / P	56.3 Hz	N / P	36.000 MHz
7		800 X 600	37.88 KHz	P	60.3 Hz	P	40.000 MHz
8		800 X 600	48.08 KHz	P	72.2 Hz	P	50.000 MHz
9		800 X 600	46.87 KHz	P	75.0 Hz	P	49.500 MHz
10		832 X 624	49.73 KHz	N	74.6 HZ	N	57.284 MHz
11	XGA	1024 X 768	48.36 KHz	N	60.0 Hz	N	65.000 MHz
12		1024 X 768	56.49 KHz	N	70.1 Hz	N	75.000 MHz
13		1024 X 768	60.02 KHz	P	75.0 Hz	P	78.750 MHz
14	SXGA	1280 X 1024	63.98 KHz	P	60.0 Hz	P	108.00 MHz
15		1280 X 1024	79.98 KHz	P	75.0 Hz	P	135.00 MHz

5. MECHANICAL STRUCTURE