FOCUS LCDs

LCDs MADE SIMPLE®

ISO 9001 QUALITY MANAGEMENT

MEDICAL | INDUSTRIAL | DEFENSE | AGRICULTURE | FOOD SERVICE

E43RB2-I-MW600-N

Product Description

- 4.3-inch TFT (62.50x105.55mm)
- 480x800 Pixels
- 2-Lane MIPI Interface
- Wide Temperature Range
- All Viewing Angles

- IPS, Transmissive
- No Touch Panel
- 600 NITS
- TFT IC: ILI9806E
- RoHS Compliant

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Revision History

Date	Rev. No	Page	Summary
07/09/2026	1.0	All	First issue

Description

This is a color active matrix TFT (Thin Film Transistor) LCD (Liquid Crystal Display) that uses amorphous silicon TFT as a switching device. This model is composed of a transmissive type TFT-LCD Panel, driver circuit, and backlight unit. The resolution of the 4.3” TFT-LCD contains 480x800 pixels and can display up to 16.7M colors.

Features

Input Voltage: 3.3V

TFT Interface: 2-Lane MIPI

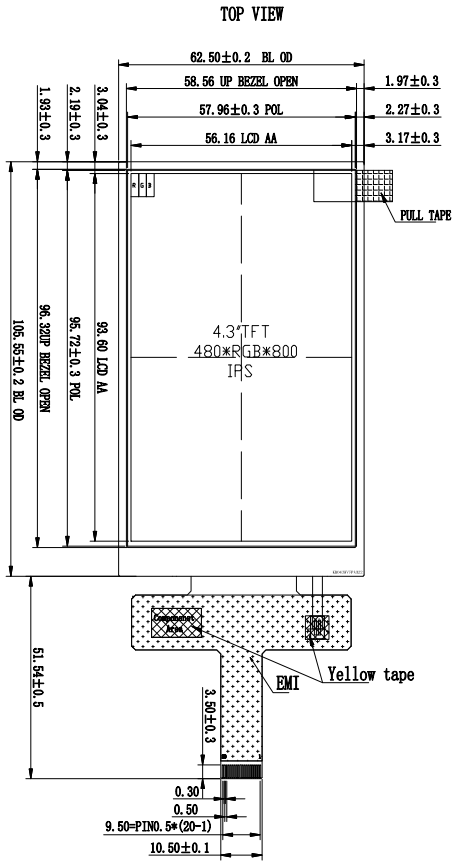
General Information Items	Specification	Unit	Note
	Main Panel		
TFT Display Area (AA)	56.16(H) x 93.60(V) (4.3 inch)	mm	--
Driver Element	TFT active matrix	--	--
Display Colors	16.7M	colors	--
Number of Pixels	480(RGB)x800	dots	--
TFT Pixel Arrangement	RGB vertical stripe	--	--
Pixel Pitch	0.117 (H) x 0.117 (V)	mm	--
Viewing Angle	ALL	o'clock	--
TFT Controller IC	ILI9806E	--	--
Display Mode	Transmissive/Normally Black	--	--
Operating Temperature	-20 to +70	°C	--
Storage Temperature	-30 to +80	°C	--

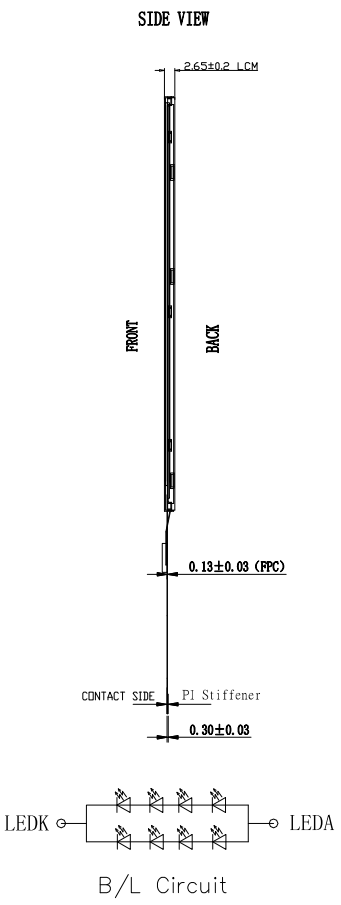
Mechanical Information

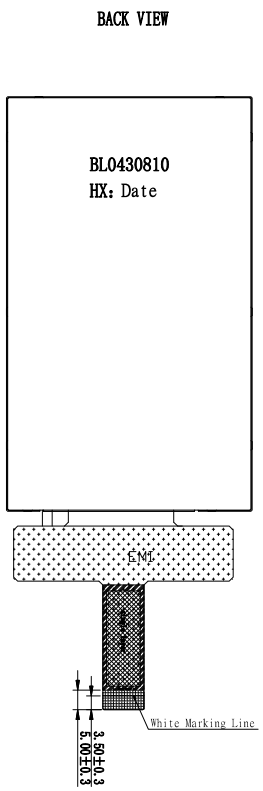
Item		Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal (H)	--	62.50	--	mm	--
	Vertical (V)	--	105.55	--	mm	--
	Depth (D)	--	2.65	--	mm	--
Weight		--	32	--	g	Approximate

1. Outline Dimensions

Rev.	Description	Date
1.0	First	07/09/2026







NO	PIN
1	NC
2	LEDK
3	NC
4	LEDA
5	NC
6	VCI
7	IOVCC
8	TE
9	RESET
10	GND
11	MIPI_D1P
12	MIPI_D1N
13	GND
14	MIPI_CLP
15	MIPI_CLN
16	GND
17	MIPI_D0P
18	MIPI_D0N
19	GND
20	GND

NOTES:
1. DISPLAY TYPE: 4.3" TFT-LCD
2. DISPLAY MODE: TFT/NORMALLY BLACK
3. LCM DRIVER IC: ILI9806E
4. SUPPLY VOLTAGE: 3.3V
5. OPERATING TEMPERATURE: -20°C TO +70°C
6. STORAGE TEMPERATURE: -30°C TO +80°C
7. VIEWING DIRECTION: ALL
8. BACKLIGHT: 8 LED WHITE, VF = 12.8±0.3V, IF = 40mA
9. ROHS COMPLIANT.

DISCLAIMER

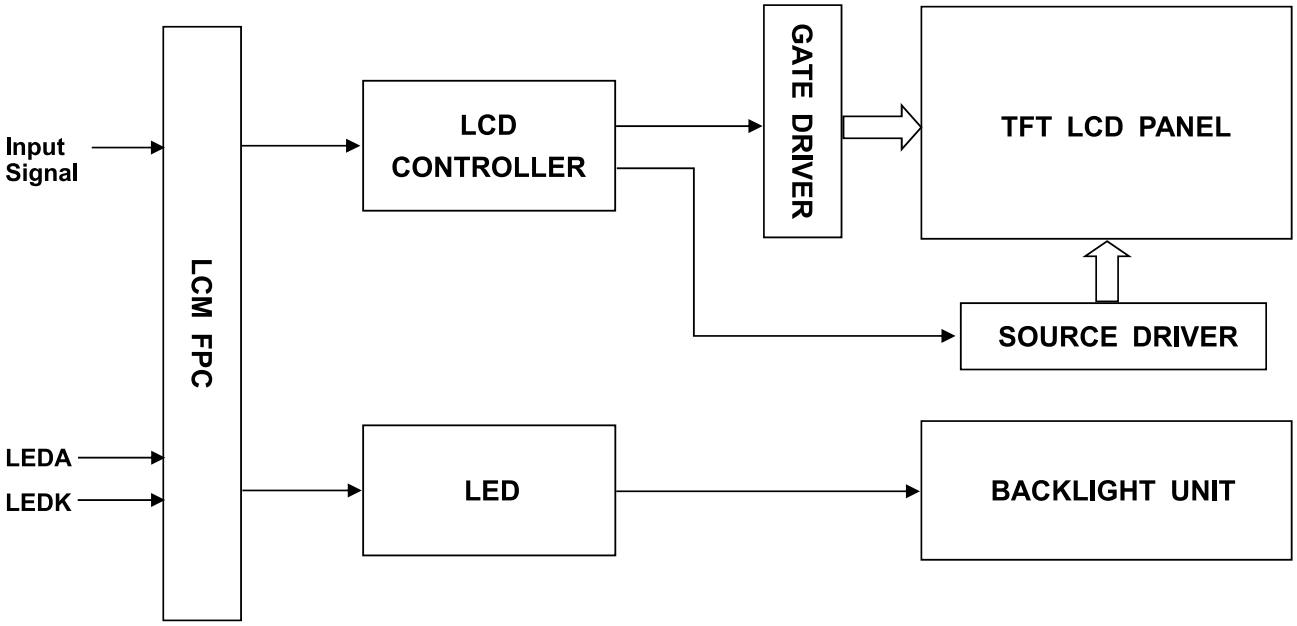
DO NOT SCALE OFF THIS DRAWING. All dimensions are given in good faith and believed to be correct. These drawings are for general presentation purposes only. No responsibility can be taken with any errors found by measuring off this drawing. The Focus LCDs PDF drawing should be referenced as the master file.

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Model Name: E43RB2-I-MW600-N		FOCUS LCDs LCDs MADE SIMPLE®	
General Tol: ±0.3			
Approvals	Date	Drawing No.:	Scale:
DWN:			
CHK:		Size:	Unit: mm / Page: 1/1
APP:			

2. Block Diagram



3. Input Terminal Pin Assignment

3.1 TFT Pin Assignment

NO.	Symbol	Description	I/O
1	NC	Not connected.	--
2	LEDK	Cathode pin of backlight.	P
3	NC	Not connected.	--
4	LEDA	Anode pin of backlight.	P
5	NC	Not connected.	--
6	VCI	Supply voltage (3.3V).	P
7	IOVCC	I/O power supply voltage.	P
8	TE	Tearing effect output. Leave the pin to open when not in use.	O
9	RESET	The external reset input. Initializes the chip with a low input. Be sure to execute a power-on reset after supplying power.	I
10	GND	Ground.	P
11	MIPI_D1P	MIPI DSI differential data pair (DSI-Dn+/-). If MIPI are not used, they should be connected to DGND.	I/O
12	MIPI_D1N		
13	GND	Ground.	P
14	MIPI_CLP	MIPI DSI differential clock pair (DSI-CLK+/-). If MIPI are not used, they should be connected to DGND.	I
15	MIPI_CLN		
16	GND	Ground.	P
17	MIPI_D0P	MIPI DSI differential data pair (DSI-Dn+/-). If MIPI are not used, they should be connected to DGND.	I/O
18	MIPI_D0N		
19	GND	Ground.	P
20	GND	Ground.	P

4. LCD Optical Characteristics

4.1 Optical Specifications

Item		Symbol	Condition	Min	Typ.	Max	Unit	Note
Color Gamut		S(%)		55	60	--	%	(5)
Contrast Ratio		CR	θ=0 Normal viewing angle	700	1000	--	%	(2)
Response Time	Rising	T_R		--	25	35	ms	(4)
	Falling	T_F						
Color Filter Chromaticity	White	W_X		0.2590	0.2990	0.3390		(5)(6)
		W_Y		0.2980	0.3380	0.3780		
	Red	R_X		0.5940	0.6340	0.6740		
		R_Y		0.3170	0.3570	0.3970		
	Green	G_X		0.2960	0.3360	0.3760		
		G_Y		0.5750	0.6150	0.6550		
	Blue	B_X		0.1120	0.1520	0.1920		
		B_Y		0.0520	0.0920	0.1320		
Viewing Angle	Hor.	Θ_L	CR≥10	70	80	--	degree	(1)(6)
		Θ_R		70	80	--		
	Ver.	Θ_T		70	80	--		
		Θ_B		70	80	--		
Option View Direction		ALL						(1)

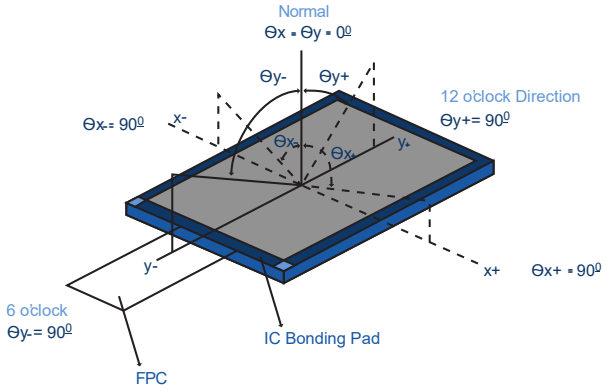
Measuring Conditions:

1. Dark Room
2. Ambient Temperature of 25±2°C
3. 15 Minute Warm up

Optical Specification Reference Notes:

(1) Definition of Viewing Angle:

The viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3,9 o'clock direction and the vertical or 6,12 o'clock direction with respect to the optical axis which is normal to the LCD surface.



(2) Definition of Contrast Ratio:

Measured at the center point of panel. The contrast ratio (Cr) measured on a module, is the ratio between the luminance (Lw) in a full white area (R=G=B=1) and the luminance (Ld) in a dark area (R=G=B=0).

$$Cr = \frac{Lw}{Ld}$$

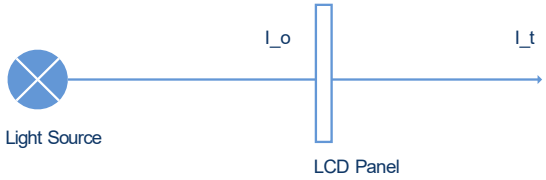
(3) Definition of Transmittance (T%):

The transmittance of the panel including the polarizers is measured with electrical driving. The equation for transmittance Tr is:

$$Tr = \frac{It}{Io} \; x \; 100\%$$

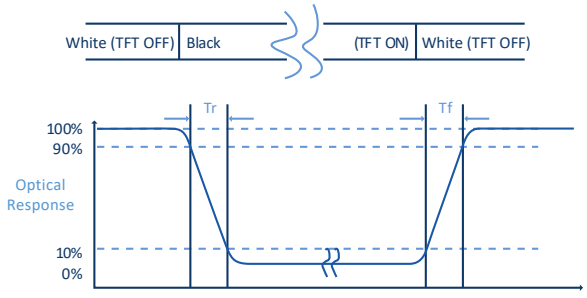
Io = the brightness of the light source.

It = the brightness after panel transmission



(4) Definition of Response Time (TR, TF):

The rise time 'Tr' is defined as the time for luminance to change from 90%to 10% as a result of a change of the electrical condition. The fall time 'Tf' is defined as the time for luminance to change from 10% to 90% as a result of a change of the electrical condition.



(5) Definition of Color Gamut:

Measuring machine CFT-01. NTSC's Primaries: R(x,y,Y), G(x,y,Y), B(x,y,Y). FPM520 of Westar Display Technologies, INC., which utilized SR-3 for Chromaticity and BM-5A for other optical characteristics. The color chromaticity shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

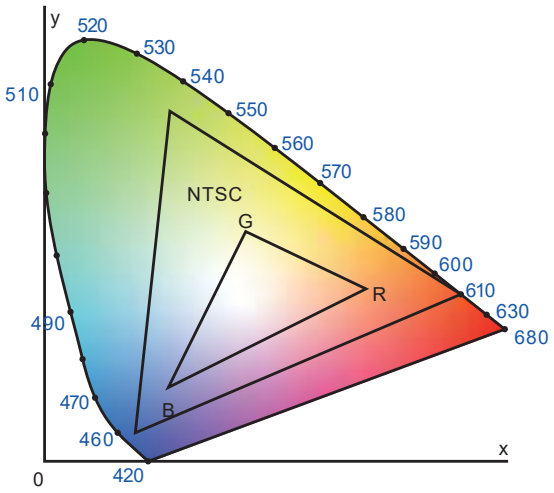
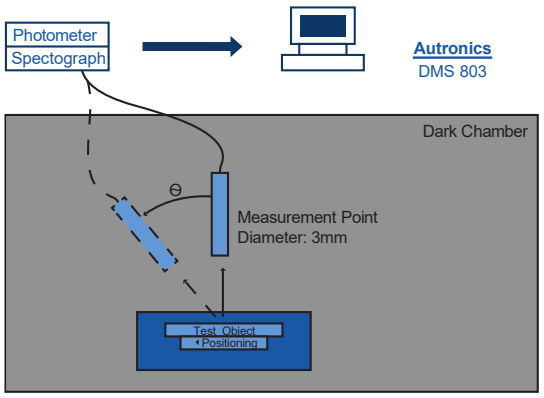


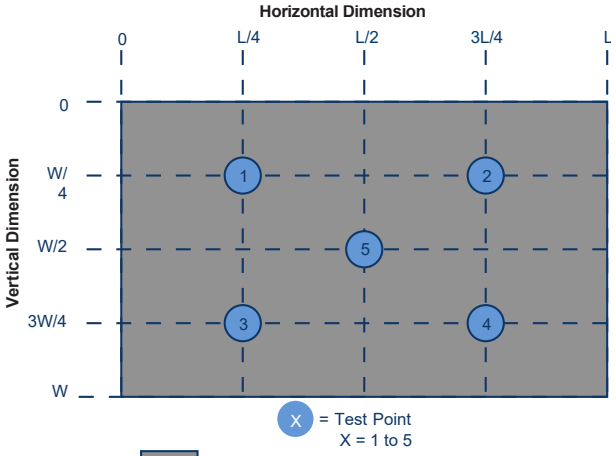
Fig. 1931 CIE Chromacity Diagram

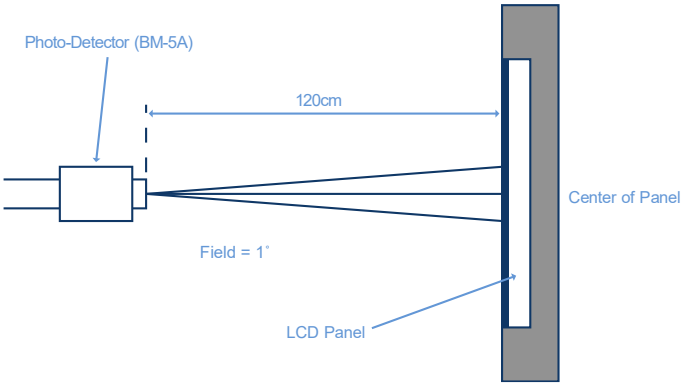
Color Gamut: $S = \frac{\text{Area of RGB Triangle}}{\text{Area of NTSC Triangle}} \times 100\%$

(6) Definition of Optical Measurement Setup:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 20 minutes.







5. TFT Electrical Characteristics

5.1 Absolute Maximum Rating (Ta=25°C)

Characteristics	Symbol	Min	Max	Unit
Digital Supply Voltage	VCI	-0.3	4.6	V
Supply Voltage (Logic)	VDDIO	-0.3	4.6	V
Operating Temperature	T_{OP}	-20	+70	°C
Storage Temperature	T_{ST}	-30	+80	°C

NOTE: If the absolute maximum rating of the above parameters is exceeded, even momentarily, the quality of the product may be degraded. Absolute maximum ratings specify the values which the product may be physically damaged if exceeded. Be sure to use the product within the range of the absolute maximum ratings.

5.2 DC Electrical Characteristics

Characteristics	Symbol	Min	Typ.	Max	Unit	Note
Digital Supply Voltage	VCI	2.5	3.3	3.6	V	--
Supply Voltage (Logic)	IOVCC	1.65	1.8	3.6	V	--
Normal Mode Current Consumption	I_{VCI}	--	35	60	mA	--
Level Input Voltage	V_{IH}	0.7*IOVCC	--	IOVCC	V	--
	V_{IL}	GND	--	0.3*IOVCC	V	--
Level Output Voltage	V_{OH}	0.8*IOVCC	--	IOVCC	V	--
	V_{OL}	GND	--	0.2*IOVCC	V	--

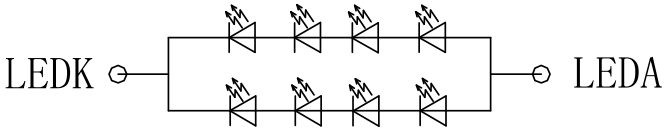
5.3 LED Backlight Characteristics

The backlight system is edge lighting type with 8 LED Chips

Item	Symbol	Min	Typ.	Max	Unit	Note
Forward Current	I_F	35	40	--	mA	--
Forward Voltage	V_F	11.0	11.6	12.8	V	--
LCM Luminance	L_V	500	600	--	cd/m^2	(3)
LED Lifetime	Hr	50000	--	--	hour	(1)(2)
Uniformity	Avg	80	--	--	%	(3)

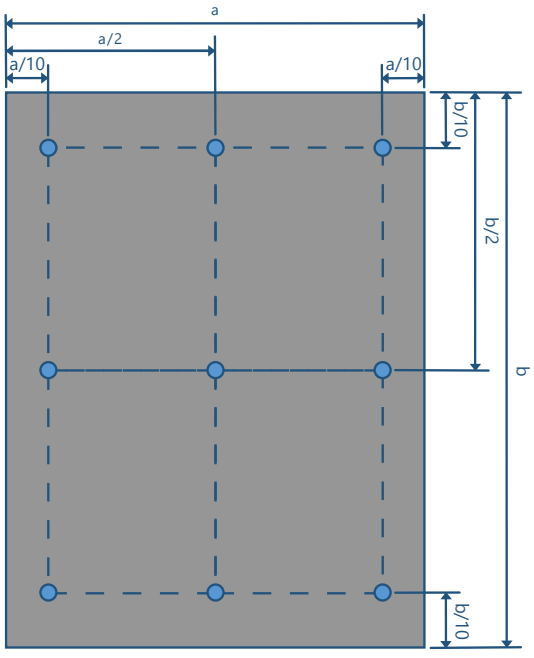
Note 1: *LED lifetime (Hr) can be defined as the time in which it continues to operate under the condition: Ta=25 ±3°C, typical IL value indicated in the above table until the brightness becomes less than 50%.*

Note 2: *The "LED lifetime" is defined as the module brightness decrease to 50% original brightness at Ta=25° C and IF = 40mA. The LED lifetime could be decreased if operating IF is larger than 40mA. The constant current driving method is suggested.*



BL CIRCUIT DIAGRAM

Note 3: Luminance Uniformity of these 9 points is defined as below:



$$Luminance = \frac{(Total\ Luminance\ of\ 9\ Points)}{9}$$

$$Uniformity = \frac{Minimum\ Luminance\ in\ 9\ Points\ (1\text{-}9)}{Maximum\ Luminance\ in\ 9\ Points\ (1\text{-}9)}$$

6. TFT AC Characteristics

6.1 High Speed Data Transmission: Data-Clock Timing

For high-speed data transmission data-clock timing diagrams and tables, see table and diagram on page 315 of the data sheet for controller ILI9806E. The data sheet can be found here:
https://focuslcds.com/wp-content/uploads/Drivers/ILI9806E.pdf

6.2 High Speed Data Transmission

For high speed data transmission diagrams and tables, see the first table and diagram page 64 of the data sheet for controller ILI9806E. The data sheet can be found here:
https://focuslcds.com/wp-content/uploads/Drivers/ILI9806E.pdf

6.3 Turnaround Procedure

For turnaround procedure diagrams and tables, see the second table and diagram page 69 of the data sheet for controller ILI9806E. The data sheet can be found here:
https://focuslcds.com/wp-content/uploads/Drivers/ILI9806E.pdf

6.4 Switching the Clock Lane Between Clock Transmission and Low-Power Mode

For switching the clock lane between clock transmission and low-power mode tables and diagrams, see page 320 of the data sheet for controller ILI9806E. The data sheet can be found here:
https://focuslcds.com/wp-content/uploads/Drivers/ILI9806E.pdf

6.5 Reset Timing Characteristics

For the reset timing characteristics table and diagram, see page 283 for the data sheet for controller ILI9806E. The data sheet can be found here:
https://focuslcds.com/wp-content/uploads/Drivers/ILI9806E.pdf

7. Quality Inspection Standards

For TFT quality inspection standards, please see the following link:
https://focuslcds.com/lcd-resources/tft-quality-inspection-standards/

8. Cautions and Handling Precautions

8.1 Handling and Operating the Module

1. When the module is assembled, it should be attached to the system firmly. Do not warp or twist the module during assembly work.
2. Protect the module from physical shock or any force. In addition to damage, this may cause improper operation or damage to the module and back-light unit.
3. Note that polarizer is very fragile and could be easily damaged. Do not press or scratch the surface.
4. Do not allow drops of water or chemicals to remain on the display surface. If you have the droplets for a long time, staining and discoloration may occur.
5. If the surface of the polarizer is dirty, clean it using some absorbent cotton or soft cloth.
6. The desirable cleaners are water, IPA (Isopropyl Alcohol) or Hexane. Do not use ketene type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.
7. If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs, or clothes, it must be washed away thoroughly with soap.
8. Protect the module from static; it may cause damage to the CMOS ICs.
9. Use fingerstalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.
10. Do not disassemble the module.
11. Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.
12. Pins of I/F connector shall not be touched directly with bare hands.
13. Do not connect, disconnect the module in the “Power ON” condition.
14. Power supply should always be turned on/off by the item Power On Sequence & Power Off Sequence.

8.2 Storage and Transportation

1. Do not leave the panel in high temperature, and high humidity for a long time. It is highly recommended to store the module with temperature from 0 to 35℃ and relative humidity of less than 70%.
2. Do not store the TFT-LCD module in direct sunlight.
3. The module shall be stored in a dark place. When storing the modules for a long time, be sure to adopt effective measures for protecting the modules from strong ultraviolet radiation, sunlight, or fluorescent light.
4. It is recommended that the modules should be stored under a condition where no condensation is allowed. Formation of dewdrops may cause an abnormal operation or a failure of the module. In particular, the greatest possible care should be taken to prevent any module from being operated where condensation has occurred inside.
5. This panel has its circuitry FPC on the bottom side and should be handled carefully in order not to be stressed.