

NHD-5.7-320240WFB-CTXI#-T-1

TFT (Thin-Film-Transistor) Color Liquid Crystal Display Module

NHD-	Newhaven Display
5.7-	5.7" Diagonal
320240-	320xRGBx240 pixels
WFB-	Model
C-	Built-in driver + Controller
T-	White LED backlight
X-	TFT
I-	6:00 view, Wide Temp
#-	RoHS Compliant
-T-1	Touch Panel

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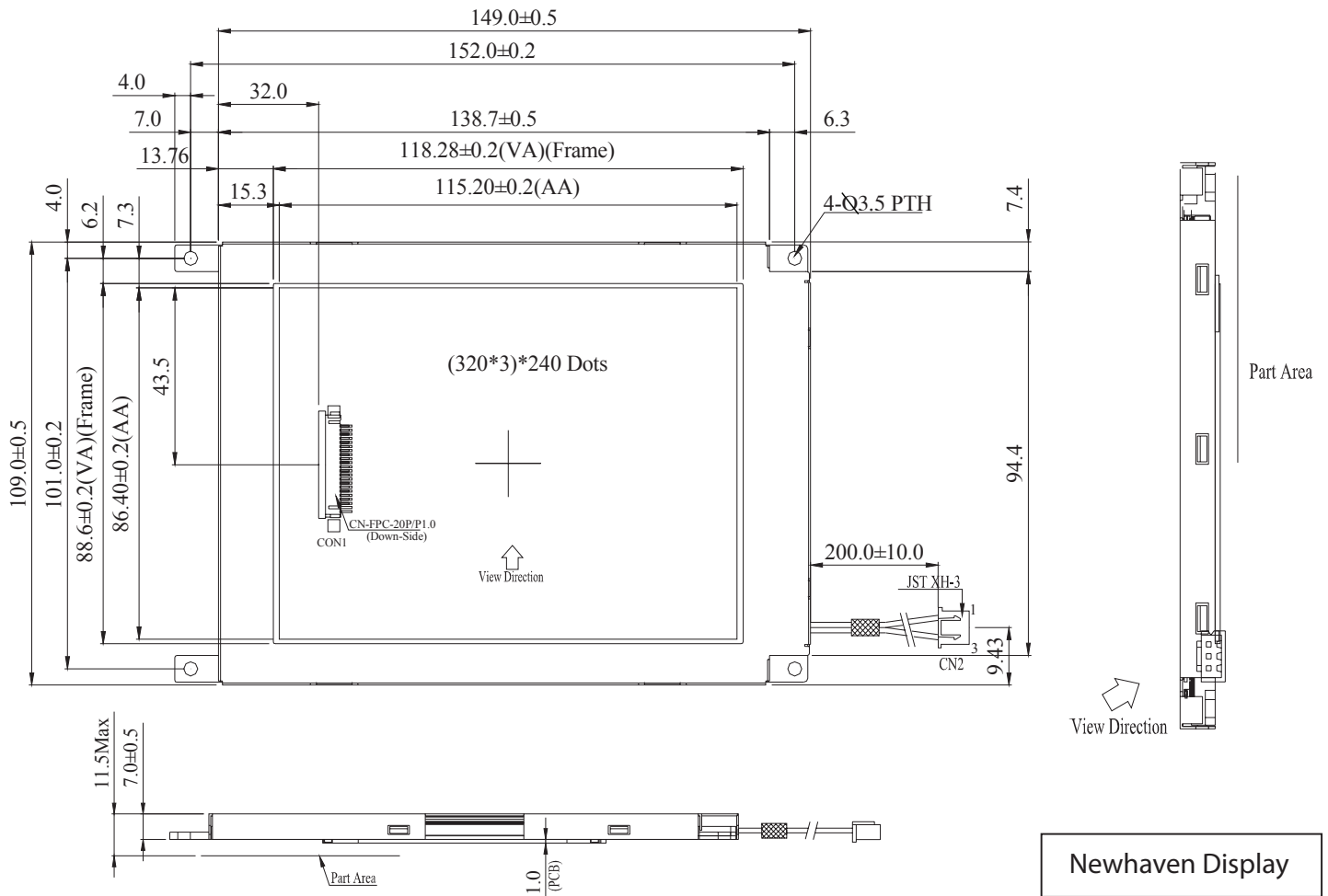
Document Revision History

Revision	Date	Description	Changed by
0	7/8/2009	Initial Release	CL
1	7/29/2009	MECHANICAL DRAWING UPDATE	CL
2	11/4/2009	Quality Information Update	BE
3	3/26/2010	Pin description Update	MP
4	4/16/2010	Updated the Recommended LCD Connector	MC
5	6/21/2010	Touch Panel Pin Description Update	MP
6	2/22/2011	Symbols for pin desc./electrical updated	BE

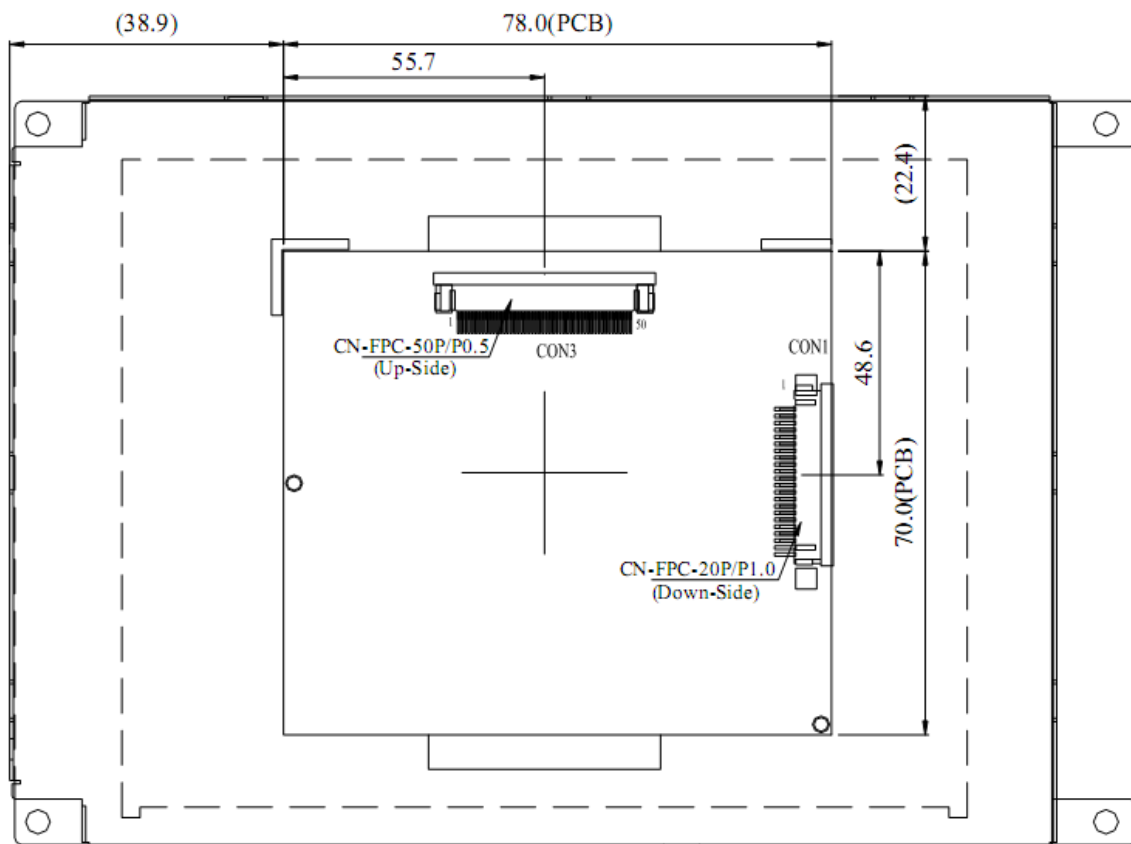
Functions and Features

- 320xRGBx240 resolution
- LED backlight
- 8-bit parallel interface
- SSD1963 Controller
- 4-Wire resistive Touch Panel

Mechanical Drawing

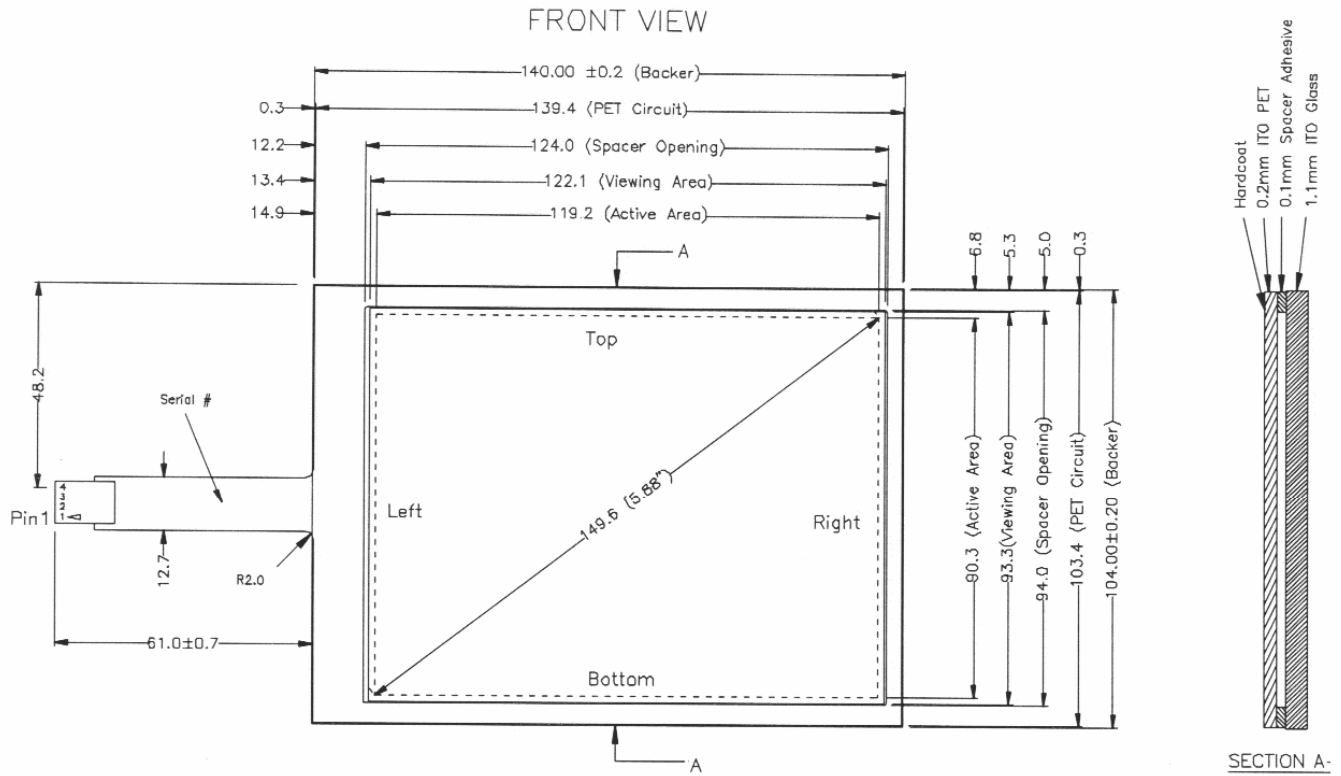


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Touch Panel Mechanical Drawing



NOTES:

1. ITO GLASS THICKNESS : 1.1mm
2. ITO PET TOP CIRCUIT THICKNESS : 0.2mm
3. SPACER ADHESIVE : 0.1mm
4. OVERALL THICKNESS : 1.40mm ±0.07
5. CONNECTOR AND PINOUT AS INDICATED
6. FRONT SURFACE ANTIGLARE HARDCOAT
7. OPTICAL SPECIFICATION : A001
8. LAYER TO LAYER ASSEMBLY TOLERANCE: ±0.3mm

Pin #	Assignment
1	Right
2	Left
3	Bottom
4	Top

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Pin Description

Pin No.	Symbol	External Connection	Function Description
1	GND	Power Supply	Ground
2	VDD	Power Supply	Power supply for LCD and logic (3.3V)
3	NC	-	No Connect
4	D/C#	MPU	Register Select signal: 1=Data, 0= Command
5	WR#	MPU	Active LOW Write signal, 8080 MPU interface
6	RD#	MPU	Active LOW Read signal, 8080 MPU interface
7-14	[DB0-DB7]	MPU	Bi-directional data bus lines
15	CS#	MPU	Active LOW Chip Select signal
16	RES#	MPU	Active LOW Reset signal
17	NC	-	No Connect
18	R/L	-	Scan direction 1: Right (Tied internally)
19	U/D	-	Scan direction 0: Down (Tied internally)
20	NC	-	No Connect

Recommended LCD connector: 1.0mm pitch 20-Conductor FFC. Molex 52271-2079

Backlight connector: JST p/n: XHP-3 **Mates with:** JST p/n: S3B-XH-SM3-TB

Touch Panel Pin Description

Pin No.	Symbol	External Connection	Function Description
1	Y1	Touch Controller	RIGHT
2	X1	Touch Controller	LEFT
3	Y2	Touch Controller	BOTTOM
4	X2	Touch Controller	TOP

Recommended Touch panel connector: 2.54mm pitch Standard Pin Headers

Controller Information

Built-in SSD1963 controller.

Please download specification at http://www.newhavendisplay.com/app_notes/SSD1963.pdf

8080 Mode Interface:

The 8080 mode MPU interface consists of CS#, D/C, RD#, WR#, and DB[7:0]. This interface uses WR# to define a write cycle and RD# to define a read cycle. If the WR# goes LOW when the CS# signal is LOW, the data or command will be latched into the system at the rising edge of WR#. Similarly, the read cycle will start when RD# goes LOW and end at the rising edge of RD#. See the SSD1963 datasheet for detailed timing diagrams.

Command Instructions:

See the SSD1963 datasheet for the Instruction Table and Command Descriptions.

Pixel Data Format:

Interface	Cycle	D[7]	D[6]	D[5]	D[4]	D[3]	D[2]	D[1]	D[0]
8 bits	1 st	R5	R4	R3	R2	R1	R0	X	X
	2 nd	G5	G4	G3	G2	G1	G0	X	X
	3 rd	B5	B4	B3	B2	B1	B0	X	X

X: Don't Care

Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Temperature Range	Top	Absolute Max	-20	-	+70	°C
Storage Temperature Range	Tst	Absolute Max	-30	-	+80	°C
Supply Voltage	VDD		3.0	3.3	3.6	V
Supply Current	IDD	VDD=3.3		121		mA
Backlight Supply Voltage	VLED		9.9	10.2	10.5	V
Backlight Supply Current	ILED	VLED=10.2V	-	140	210	mA
Backlight Lifetime			10,000			Hr

Backlight is 7 Parallel groups of 3-Serial LEDs each.

Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Viewing Angle – Top		Cr ≥ 10	40	50		°
Viewing Angle – Bottom		Cr ≥ 10	45	55		°
Viewing Angle – Left		Cr ≥ 10	50	60		°
Viewing Angle – Right		Cr ≥ 10	50	60		°
Contrast Ratio	Cr		300	400		
Luminance	YL		200	250		cd/m ²
Response Time (rise)	Tr	-	-	10		ms
Response Time (fall)	Tf	-	-	15		ms

Touch Panel Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Linearity					1.5	%
Circuit Resistance – X-Axis			350		1000	Ω
Circuit Resistance – Y-Axis			200		650	Ω
Insulation Resistance			20			MΩ
Operating Voltage					5	V
Chattering					15	Ms
Transmittance			80			%
Activation Force					80	g
Pen Writing Durability			10,000			Characters
Pitting Durability			1,200,000			Touches
Surface Hardness			2			H
Haze				7		%

Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	+80°C , 240hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C , 240hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time.	+70°C 240hrs	2
Low Temperature Operation	Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time.	-20°C , 240hrs	1,2
High Temperature / Humidity Operation	Endurance test applying the electric stress (voltage & current) and the high thermal with high humidity stress for a long time.	+60°C , 90% RH , 240hrs	1,2
Thermal Shock resistance	Endurance test applying the electric stress (voltage & current) during a cycle of low and high thermal stress.	-20°C,30min -> 25°C,5min -> 70°C,30min = 1 cycle 10 cycles	
Vibration test	Endurance test applying vibration to simulate transportation and use.	10-55Hz , 15mm amplitude. 60 sec in each of 3 directions X,Y,Z For 15 minutes	3
Static electricity test	Endurance test applying electric static discharge.	VS=800V, RS=1.5kΩ, CS=100pF One time	

Note 1: No condensation to be observed.

Note 2: Conducted after 4 hours of storage at 25°C, 0%RH.

Note 3: Test performed on product itself, not inside a container.

Precautions for using LCDs/LCMs

See Precautions at www.newhavendisplay.com/specs/precautions.pdf

Warranty Information and Terms & Conditions

http://www.newhavendisplay.com/index.php?main_page=terms