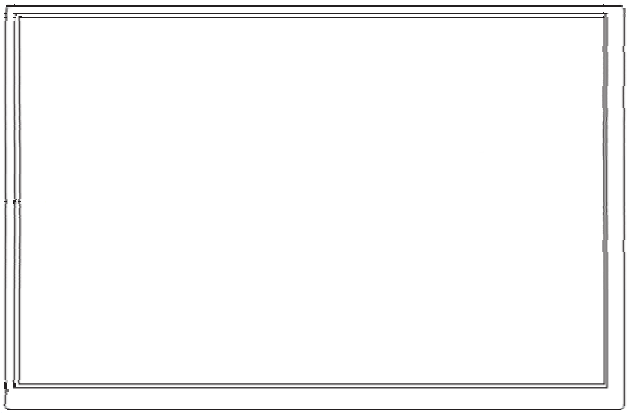
HANTRONIX

PRODUCT SPECIFICATION

HDA1010W-HDMI

10.1”, TFT WXGA (1280X800) COLOR LCD DISPLAY MODULE



HANTRONIX, INC. 10080 BUBB RD. CUPERTINO, CA 95014	Q.A.: Z.W.	REV.: 1.0	HDA1010W-HDMI	SHEET 1 OF 14 DATE: 12/6/16

1. General Specifications

No	Item	Contents	Unit
1	Size	10.1	inch
2	Resolution	1280RGB*800	
3	Interface	HDMI A Type	
4	Color Depth	16.7	M
5	Technology Type	a-Si TFT	
6	Sub pixel size	0.1695*0.1695	mm
7	Pixel Arrangement	RGB-stripe	
8	Display Mode	Transmissive	
9	Viewing Direction	all	o'clock
10	LCM (W x H x D)	229.46*149.1*12.3	mm
11	Active Area (W x H)	216.96*135.60	mm
12	With/Without TSP	Without TSP	

1	Operating Voltage:	5V
2	Resolution:	1280RGB*800
3	Interface:	HDMI
4	Display type:	Transmissive
5	Viewing Direction:	Free
6	Operating Temp:	0°C~50°C
7	Storage Temp:	-20°C~60°C
8	Unspecified tolerance:	±0.3

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3. PIN Assignment

J2:(HDMI)

Pin No	Symbol
1	TX0+
2	TX2_SHIELD
3	TX0-
4	TX1+
5	TX1_SHIELD
6	TX1-
7	TX2+
8	TX0_SHIELD
9	TX2-
10	TXC+
11	TXC_SHIEL
12	TXC-
13	CEC
14	UTILITY
15	DDCLK
16	DDAT
17	GND
18	+5V
19	HOTPLUS

J4:

Pin No	Symbol
1	+5V
2	NC
3	NC
4	NC
5	GND

4. Absolute Maximum Rating

AGND = GND = 0V , Ta = 25° C

Item	Symbol	Min	Max	Unit	Remark
Operating Temperature	T_{OPR}	0	50	° C	
Storage Temperature	T_{STG}	-20	60	° C	

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

5. Electrical Characteristics

5.1. Recommended Operating Condition

AGND = GND = 0V , Ta = 25° C

Item	Min	Typ.	Max	Unit	Remark
Power Voltage		5		V	

6. Optical Characteristics

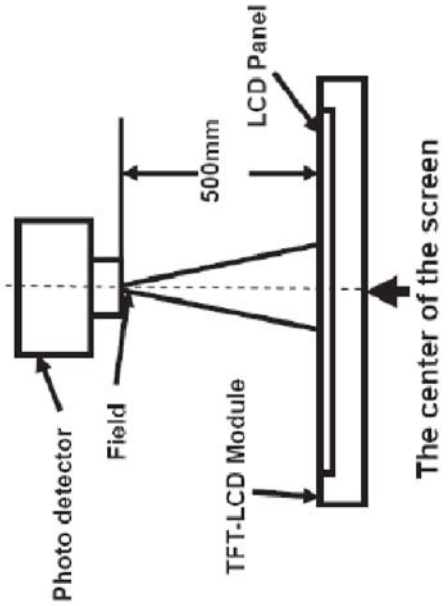
Item		Symbol	Condition	Min	Typ	Max	Unit	Remark
View Angles		θ T	CR≥10	75	85		Degree	Note 2
		θ B		75	85			
		θ L		75	85			
		θ R		75	85			
Contrast Ratio		CR	θ =0°	600	800			Note 1 Note 3
Response Time		T_{ON}	25° C	-	10	20	ms	Note 1 Note 4
		T_{OFF}		-	15	30		
Chromaticity	W_x	x		0.26	0.31	0.36		Note 1 Note 5
	W_y	y		0.28	0.33	0.38		
Uniformity		U		75	80		%	Note 5
Luminance		L		300	350		cd/m^2	Note 1 Note 5

Test Conditions:

1. The operating voltage is 5V,the ambient temperature is 25° C.
2. The test systems refer to Note 2.

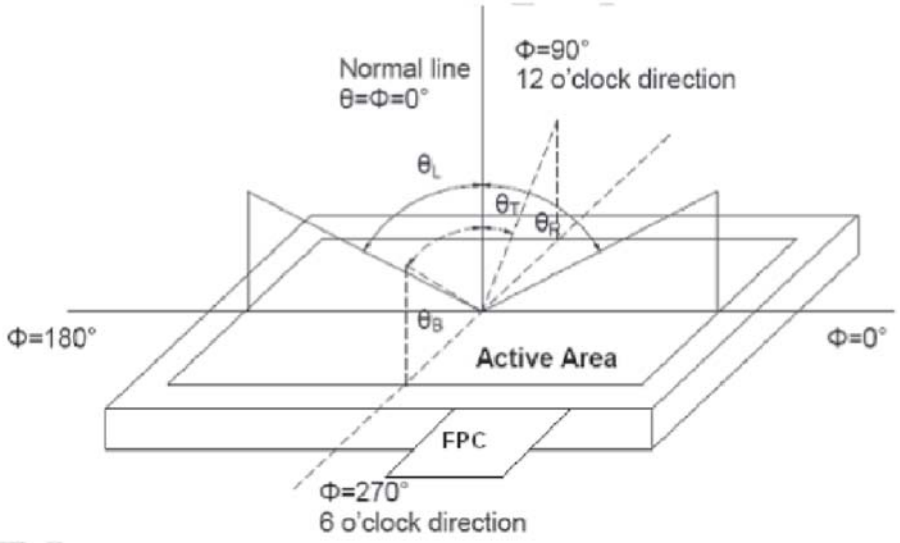
Note1: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 5Minutes operation, the optical properties are measured at the center point of the LCD screen. ALL input terminals LCD panel must be ground when measuring the center area of the panel.



Item	Photo detector	Field
Contrast Ratio	CS1000	1°
Luminance		
Lum Uniformity		
Chromaticity	CS1000	
Response Time	DMS703	-

Note2: Definition of viewing angle range and measurement system.
Viewing angle is measured at the center point of the LCD by CONOSCOPE (DMS703)



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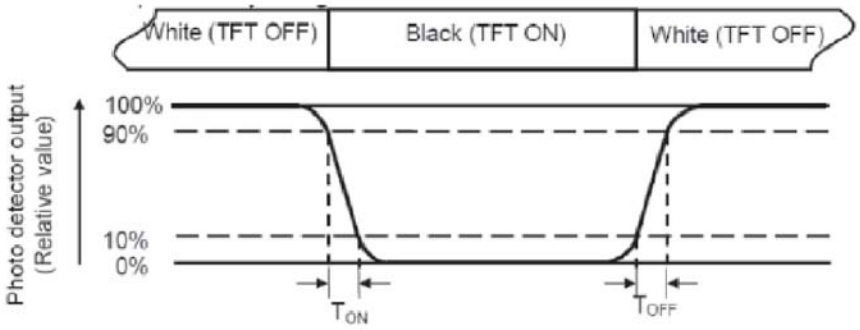
NOTE3: Definition of contrast ratio

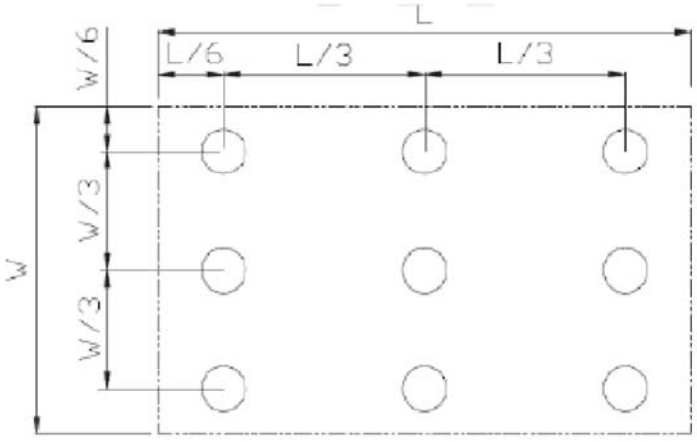
$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

"White state ":The state is that the LCD should drive by Vwhite.

"Black state ":The state is that the LCD should drive by Vblack.
Vwhite: To be determined Vblack: To be determined
Note4:Definition of Response time
The response time is defined as the LCD optical switching time interval between "White"state and "Black" state. Rise time (T_{ON})is the time between photo detector output intensity changed from 90% to 10%.And fall time (T_{OFF})is the time between photo detector output intensity changed from 10% to90%.



Note5:Definition of color chromaticity（CIE1931）
Color coordinates measured at center point of LCD.
Note6: Definition of Luminance Uniformity
Active area is divided into 9 measuring areas(Refer Fig.2).Every measuring point is placed at the center of each measuring area.
Luminance Uniformity (U)=Lmin/Lmax
L--------Active area length W--------Active area width



L max: The measured Maximum luminance of all measurement position.
L min: The measured Minimum luminance of all measurement position.
Note7: Definition of luminance:

Measure the luminance of white state at center point.

7. Environmental/Reliability Test

No.	Test Item	Test Condition	Inspection after test
1	High Temperature Storage	60±2℃/240 hours	Inspection after 2~4hours storage at room temperature,the sample shall be free from defects: 1.Air bubble in the LCD; 2.Sealleak; 3.Non-display; 4.missing segments; 5.Glass crack; 6.Current Idd is twice higher than initial value.
2	Low Temperature Storage	-20±2℃/240 hours	
3	High Temperature Operating	50±2℃/240 hours	
4	Low Temperature Operating	0±2℃/240 hours	
5	Temperature Cycle	20℃~20℃~ 60℃ × 10cycles (30min.) (5min.) (30min.)	
6	Damp Proof Test	60℃±5℃×90%RH/120 hours	
7	Vibration Test	Frequency：10Hz~55Hz~10Hz Amplitude：1.5mm, X，Y，Z direction for total	
8	Dropping test	Drop to the ground from 1m height, one time, every side of carton. (Packing condition)	

Remark:
1.The test samples should be applied to only one test item.
2.Sample size for each test item is 5~10pcs.
3.For Damp Proof Test, Pure water(Resistance＞10MΩ) should be used.
4.In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judge as a good part.
5.Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.
6.Please use automatic switch menu(or roll menu) testing mode when test operating mode.

9. Standard Specifications For Product Quality

9.1. Manner of test:

10.1.1 The test must be under 40W fluorescent light, and the distance of view must be at 30±10cm.

10.1.2 Room temperature 25±5℃ Humidity: (60±10)%RH.

9.2. Quality specification

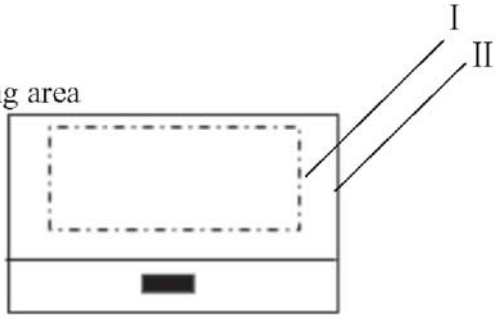
It shall be based on GB2828-87, inspection level Ⅱ .

	IETM	CHECK LEVEL	AQL
MAJOR (MA)	1.Liquid crystal leakage 2.Wrong polarizer 3.Outside dimension 4. Bright dot、Dark dot 5. Display abnormal 6. Class crack	Ⅱ	0.25
MINOR (MI)	1. Spot Defect (Including black spot、white spot、pinhole、foreign particle、bubbles、hurt) 2. fragment 3. Line Defect (Including black line、white line、cratch) 4. Incision defect 5. Newton's ring 6. Other visual defects	Ⅱ	1.0

9.3. Definition of area:

10.3.1 Ⅰ area: viewing area

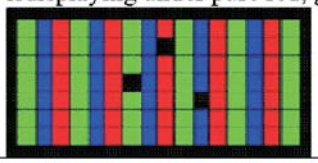
Ⅱ area: outside viewing area



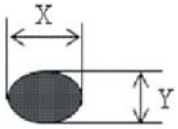
9.4.Standard of appearance test for Ⅰ area: (unit: mm)

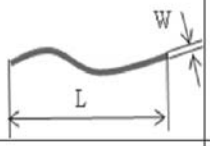
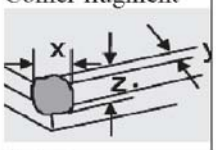
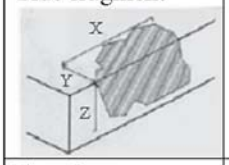
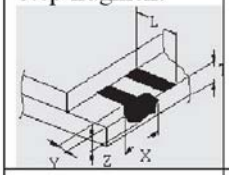
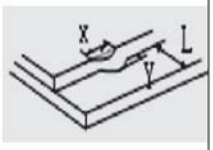
NOTE: Defect ignore for Ⅱ area .

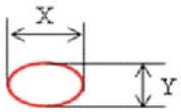
9.4.1 Bright/Dark Dots explain

Name	Explain	Definition
Bright dot	Dots appear bright and unchanged in size in which LCD panel isdisplaying under black pattern 	The definition of dot: The size of a defective dot over 1/2 of single pixel dot is regarded as one defective dot . NOTE: One pixel consists of 3 sub-pixels, including R,G, and B dot.(Sub-pixel = Dot)
Dark dot	Dots appear dark and unchanged in size in which LCD panel isdisplaying under pure red, green, blue pattern. 	
ADJACENT DOT	Adjacent two sub-pixel are defect（define two dot defect）	

9.4.2 Inspection standard

№	Items	Criterion		Checking Manner	Defect Classes
1	Bright/dark dot	Under 6” (contain 6”)	Bright dot：2 Dark dot：N≤4 **Note:** be more than 5mm apart	Checking with eyes	MAJ
		6”-12”	Bright dot：N≤4 Dark dot：N≤5 Total Bright and Dark Dots：N≤8 **Note ：** 1.Two bright dot defects (red, green, blue, and white) should be larger than 15mm; 2.The distance between black dot defects or black and bright dot defects should be more than 5mm apart.		
2	Spot Defect (Including black spot.white spot. Pinhole.foreign particle.bubbles.hurt）  D=(X+Y)/2	Under 6” (contain 6”)	D≤0.1 Ignore 0.1＜D≤0.35 N≤3 0.35＜D N=0	Checking with eyes	MIN
		6”-12”	D≤0.3 Ignore 0.3＜D≤0.6 N≤4 0.6＜D N=0		

№	Items	Criterion		Checking manner	Defect classes
3	Line Defect (Including black Line.white line. scratch) 	Under 6" (contain 6")	W≤0.02 Ignore 0.02＜W≤0.04 L≤5 N≤2 0.04＜W≤0.06 L≤5 N≤1 W＞0.06 N=0	Checking with eyes	MIN
		6"-12"	W≤0.07 Ignore 0.07＜W≤0.1 L≤10 N≤4 W＞0.1 N=0		
4	Display abnormal	Not allowed		Checking with eyes	MAJ
5	Outside dimension	Accord with drawing		Callipers	MAJ
6	Class crack	Not allowed		Checking with eyes	MAJ
7	Leak	Not allowed		Checking with eyes	MAJ
8	Comer fragment 	X≤3 Y≤3 Z≤T Ignore Note ： 1.No hurt identifying .wire.seal 2.T：Glass thickness X: Length Y: Width Z: thickness		Checking with eyes	MIN
9	Side fragment 	Y≤1 Z≤T Ignore Note ： 1.No hurt identifying .wire.seal 2.T：Glass thickness X: Length Y: Width Z: thickness		Checking with eyes	MIN
	Step fragment 	Y≤1 and Y≤1/4 L		Checking with eyes	MIN
	Incision defect 	Y≤1 and accord with outside dimension		Checking with eyes	MIN

№	Items	Criterion		Checking manner	Defect classes
10	Newton's ring （CTP or Cover board）  D=(X+Y)/2	Under 6" (contain 6")	D≤25 N≤3 D＞25 N=0	Checking with eyes	MIN
		6"-12"	D≤70 N≤5 D＞70 N=0		

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