TFT LCD

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Description

MP010830 is a 4.3 (16:9) inch diagonally measured active display with high resolution WXGA 800x480 display and high brightness. This model is composed of a TFT LCD panel, backlight system, a projected capacitive touch panel and HDMI interface . It is designed to make Raspberry Pi usage easy. You can simply use this TFT display with your Raspberry Pi, or also you can use this as computer display with any device which has HDMI output. This 5.0" TFT model comes in 800 × 480 resolution that would be great for embedded computing usage too.
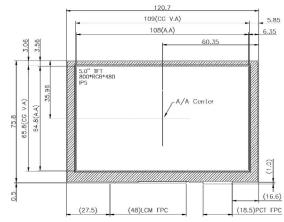
Features

No.	Item	Specification	Unit
1	Panel Size	5"	Inch
2	Number of Pixels	800 (W) × RGB × 480 (H)	Pixels
3	Active Area	108 (W) × 64.8 (H)	mm
4	Pixel Pitch	0.135 (W) × 0.135 (H)	mm
5	Outline Dimension	120.7 (W) × 75.8 (H) × 19.2 (T)	mm
6	Number of Colors	16.7M	- -
7	Display Mode	IPS / Normally Black / Transmissive	- -
8	View Direction	Free direction	- -
9	Display Format	RGB vertical stripe	- -
10	Surface Treatment	Clear (7H)	- -
11	Contrast Ratio	600 (Typ.)	- -
12	Luminance (cd/m^2)	850 (Typ.)	cd/m2
13	Video Input Interface	HDMI (Compliance HDMI V1.4)	- -
14	Backlight	White LED	- -
15	Operation Temperature	-30 to 70	°C
16	Storage Temperature	-30 to 80	°C
17	Weight	(125)	g

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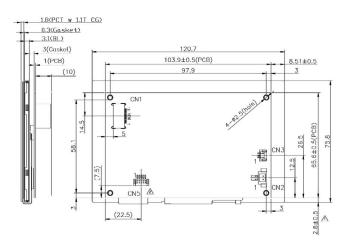Page <1>   17/10/22   V1.0

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Mechanical Specification

Pin Description

HDMI (CN1)   [HDMI A TYPE: A111974-2-01-R or compatible]

Pin No.	Symbol	I/O	Function
1	TMDS 2+	I	TMDS Data2+
2	GND	P	TMDS Data2 Shield
3	TMDS 2-	I	TMDS Data2–
4	TMDS 1+	I	TMDS Data1+
5	GND	P	TMDS Data1 Shield
6	TMDS 1-	I	TMDS Data1–
7	TMDS 0+	I	TMDS Data0+
8	GND	P	TMDS Data0 Shield
9	TMDS 0-	I	TMDS Data0–
10	TMDS CLK+	I	TMDS Clock+
11	GND	P	TMDS Clock Shield
12	TMDS CLK-	I	TMDS Clock–
13	N.C.	-	N.C.
14	N.C.	-	N.C.
15	DDC_SCL	I	IIC SCL to EDID ROM
16	DDC_SDA	I/O	IIC SDA to EDID ROM
17	GND	P	DDC/CEC Ground
18	HD_5V	P	+5V Power
19	HPD	O	Hot Plug Detect

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Power Input and PCT Control (CN4) [WAFER P1.25mm: 1251-05-ST-SE or compatible]

Pin No.	Symbol	I/O	Function
1	GND -EARTH	P	Earth Ground (Shield)
2	VDD_5V		Power supply +5V for LCM and USB I/F
3	GND		Power Ground
4	D+	I/O	USB data +
5	D-		USB data -

Back-light Control(CN3) [WAFER P1.25mm: 1251-03-ST-SE or compatible]

Pin No.	Symbol	I/O	Function	Note
1	GND	P	Ground	
2	PWM	I	Back-light Dimming control (internal pull up to 3.3V)	*1
3	NC	-	No connection.	

Absolute Maximum Ratings

Electrical Absolute Rating
HDMI TFT LCD Module

Item	Symbol	Values		Unit
		Min	Max.	
Power supply voltage	5V	4.5	5.5	V

Environment Absolute Rating

Item	Symbol	Values		Unit	Note
		Min	Max.		
Operating Temperature	Top	-30	70	°C	Ambient temperature
Storage Temperature	Tst		80		

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Block Diagram

TFT LCD Module

Electrical Characteristics

HDMI TFT LCD Module

Item	Symbol	Values			Unit	Note
		Min	**Typ.**	**Max.**		
Supply Voltage	5V	4.5	5	5.5	V	
PWM frequency		200	-	200K	Hz	
PWM Dimming Voltage	V_{PWM-IH}	2	3.3	5	V	
	V_{PWM-IL}	-	-	0.8		
Supply Current	ICC(5V)	-	440	490	mA	
LED life time		-	50000	-	Hr	(1)

Note
The "LED life time" is defined as the module brightness decrease to 50% original brightness that the ambient temperature is 25°C 60% RH.

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Porojected Capacitive Touch Panel Specification

Main Feature

Item	Specification	Unit
Screen Size	5 inch	Diagonal
Type	Transparent Type Projected Capacitive	--
Input Mode	Human's Finger	--
Finger	5	--
Interface	USB 2.0	--
Operating system OS	Windows / Linux / Android	--
Cover glass pencil-hardness	7H	--
Response time	25	ms
Driver IC	FT5426	

Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Brightness		--	Note1, Note 3, (θ= 0˚, Normal Viewing Angle)	680	850	--	cd/m2
Uniformity		B-uni		70	75	-	%
Contrast Ratio		CR		500	600	--	--
Response Time		Tr + Tf		--	30	40	ms
Colour Chromaticity	White	Wx		0.26	0.31	0.36	--
		Wy		0.28	0.33	0.38	
View angle	Horizontal	θx+	Center CR≥10	70	80	--	
		θx-					
	Vertical	θY+					
		θY-					

Note: The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance ≤1 lux, and at room temperature). The operation temperature is 25˚C±2˚C. The measurement method is shown in Note1.

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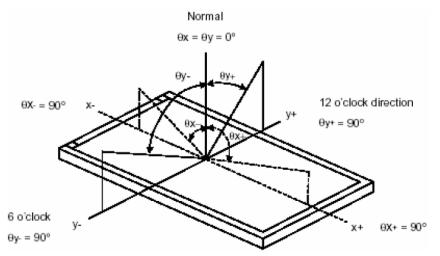Farnell.com/multicomp-pro
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Note1: The method of optical measurement

Note2: Measured at the center area of the panel and at the viewing angle of the θx=θy=0˚
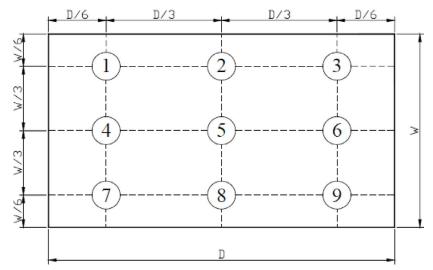Note3: Definition of Contrast Ratio (CR):
CR = Luminance with all pixels in white state ÷ Luminance with all pixels in Black state

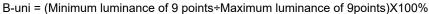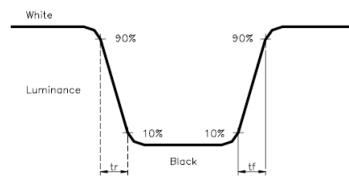## Definition of Viewing Angle

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Definition of Brightness Uniformity (B-uni)

B-uni = (Minimum luminance of 9 points÷Maximum luminance of 9points)X100%

Note 6: Definition of Response Time:

The Response Time is set initially by defining the "Rising Time (Tr)" and the "Falling Time (Tf)" respectively. Tr and Tf are defined as following figure

Note 7: Definition of Chromaticity:

The color coordinates (Wx,Wy),(Rx,Ry),(Gx,Gy),and (Bx,By) are obtained with all pixels in the viewing field at white, red, green, and blue states, respectively.

Part Number Table

Description	Part Number
TFT LCD, Capacitive Touch Panel, 5", HDMI, 800 × 480	MP010830

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