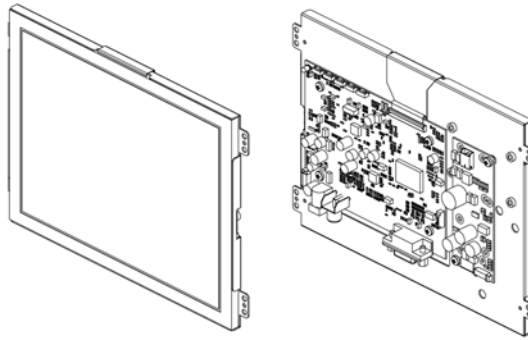




## OPEN FRAME DISPLAY KIT

**MODEL: FCOP840**

**8" (800x600) Digital TFT LCD Aspect Ratio: 4:3 Ultra Compact NTSC/PAL  
Video Auto Switch Input Signal CVBS / Analog RGB (VGA) All Functions can  
be controlled by UART 5 Key Buttons Controls, LED Backlight, Single  
Operation Voltage +12V, High Brightness 1000 nits,  
supports Mirror and flip function.**



## ***1. General Description***

### ***1.1 Features***

- 8" (800x600) Digital TFT LCD
- Aspect Ratio: 4:3
- Ultra Compact
- NTSC/PAL Video Auto Switch
- Input Signal CVBS / Analog RGB (VGA)
- All Functions can be controlled by UART
- 5 Key Buttons Controls
- LED Backlight
- Single Operation Voltage +12V
- High Brightness 1000 nits

### ***1.2 Applications***

- Portable product
- Industrial
- Hand-held
- Security
- Instrument Display
- Office Electronics
- Educate Application

## 2. Contents

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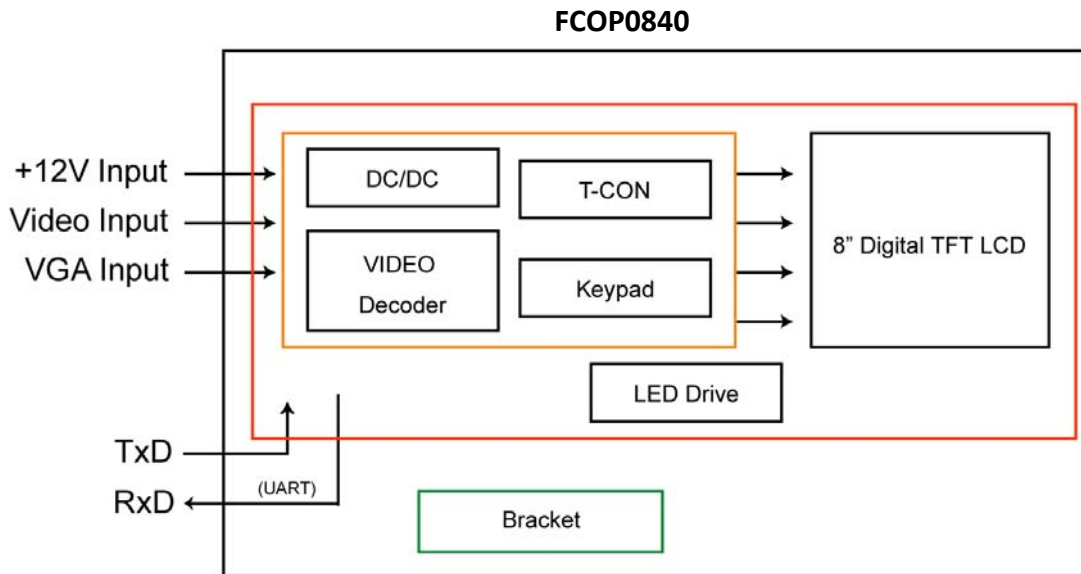
### 3. Specifications

LCD	
Panel Size	8"
Resolution (Pixels)	800 x 600
Color	16.2M
Luminance	1000 cd/m <sup>2</sup>
Contrast Ratio	500
View Angle	70 / 70 / 70 / 50
LED Life Time	20K (Typ)
Power Requirement	
Power Input (DC Jack 2.1 φ)	+12 VDC
PowerConsumption@+12V	7.32W

Input Signal		
CVBS	RCA JACK	
VGA	D-Sub15	
Controls		
Key	5 Buttons	
Serial Remote Control	UART	
Environment		
Temperature Range	Operating	-20 ~ +70°C
	Storage	-20 ~ +70°C
High Temperature &High Humidity(Non-condensing)	Operating	+40°C / 90%

**Note:** The "LED Life Time" is defined as the module brightness decrease to 50% original

### 4. Block Diagram



## 5. Order Information

### 5.1 *Unit*

Item	FCOP0840	Unit	Remark
CVBS (RCA-Jack)	⊙		
VGA (DB-15)	⊙		
5 Keys	⊙		
UART Remote Control	⊙		
Dimension	197.2 x 142.8 x 22.9	mm	
Weight	TBD	g	±10%
Condition	Standard		

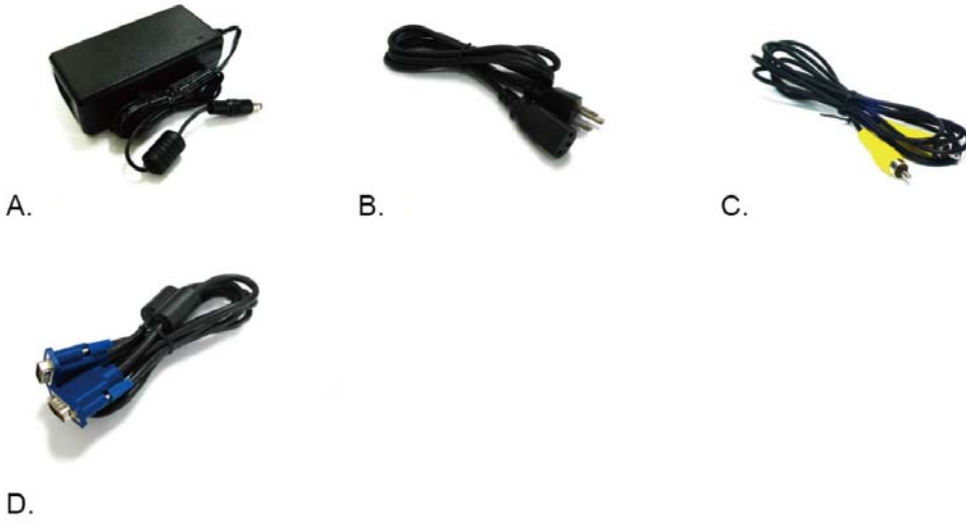
**Note: 1.** The assembling of panel and bracket is aimed for delivery, packaging and experiment. If the demand of shockproof and long-term fix, pls have it into consideration of mechanism design.

Item	Condition
RS232 Remote Control External Key	Customized

**Note:** Special order condition will apply to non-standard items and pls. contact salespersons in iTech.

## 6. Accessories (Option)

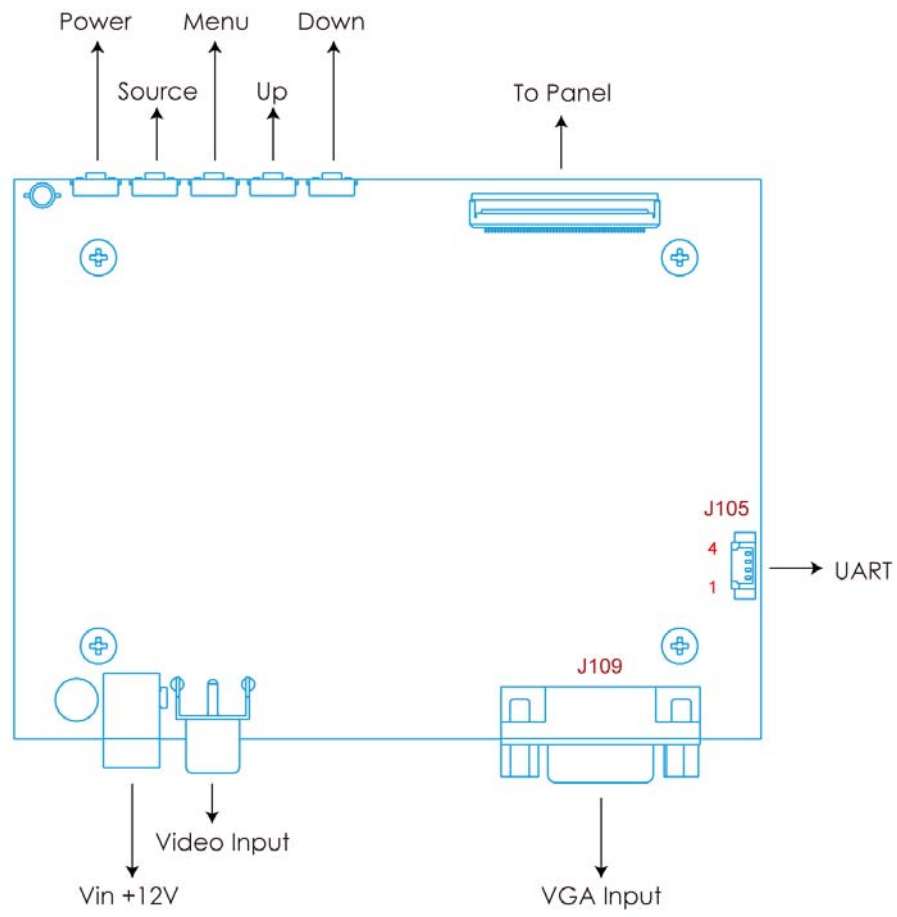
Before you begin installing the KIT, please make sure that the following materials have been shipped:



- A. AC to DC Adapter (L:1500mm,100-240V<sub>AC</sub> 50-60Hz to +12V<sub>DC</sub> @ 3.3A,  $\phi$  2.1)
- B. D Type AC Power Cord (L:1800mm, Plug Type B for USA)
- C. Video Cable (L:1800mm)
- D. VGA Cable DB-15 male to male (L:1800mm)

## 7 Operation manual / Connection

### 7.1 Driver Board Manual

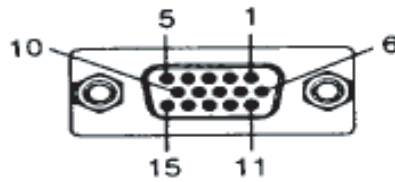


## 8. Pin Description

### 8.1 J109 : Pin Assignment of Analog RGB Input ( D-Sub 15Pin)

Pin No.	Symbol	I/O	Description	Remark
1	RI+	I	Analog Red Signal	
2	GI+	I	Analog Green Signal	
3	BI+	I	Analog Blue Signal	
4	NC	-	No Connection	
5	GND	P	Ground	
6	AGND	P	Analog Ground	
7	AGND	P	Analog Ground	
8	AGND	P	Analog Ground	
9	NC	-	No Connection	
10	NC	-	No Connection	
11	NC	-	No Connection	
12	NC	-	No Connection	
13	HS_IN	I	TTL Horizontal sync	
14	VS_IN	I	TTL Vertical sync	
15	NC	-	No Connection	

I: input, O: output, P: Power/GND



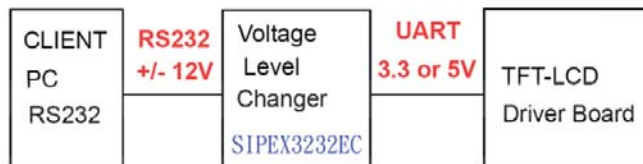
### 8.2 J105: Pin Assignment of UART (Pitch 1.25mm 4Pin, Top Entry Type)

※ Connector Part No.: MS24014 (STM) [Same as 53398-0471 (MOLEX)];

※ Matching Connector Part No.: P24014 (STM) [Same as 51021-0400 (MOLEX)].

Pin No.	Symbol	I/O	Description	Remark
1	TX	O	UART Transmission Data	
2	RX	I	UART Receive Data	
3	GND	P	Ground	
4	3DVCC	P	+3.3V Output Voltage	

Note: All Functions can be controlled by UART , About UART command list please contact iTech sales.



### 8.3 DC JACK: Pin Assignment of Power Input (Inside Diameter:2.1 φOutside Diameter:5.5 φSide Entry Type)

Pin No.	Symbol	I/O	Description	Remark
1	VIN	P	+12V Input Voltage	
2	GND	P	Power Ground	



#### 8.4 RCA: Pin Assignment of Video Input (RCA JACK Yellow, Side Entry Type)

※ Connector Part No.: MS240112R (STM) [Same as 53261-1219 (MOLEX)] ;

※ Matching Connector Part No.: P240112 (STM) [Same as 51021-1200 (MOLEX)].

Pin No.	Symbol	I/O	Description	Remark
1	Video	I	Video Input	
2	AGND	P	Analog Ground	

## 9. Absolute Maximum Ratings

### 9.1 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remark
Input Voltage	V <sub>in</sub>	9	15	V	
Video Input Signal	Video in	0.5	2.0	V <sub>p-p</sub>	@75Ω
Analog RGB Input Signal	Analog RGB in	0.5	2.0	V <sub>p-p</sub>	@75Ω
Digital Input Signal	TTL	-0.3	+3.6	V	
Operating Temperature		-20	+70	°C	
Storage Temperature		-20	+70	°C	
High Temperature & High Humidity (Non-condensing)		-	+40 / 90	°C / %	

## 10. Recommended Operating Conditions

### 10.1 Electrical Characteristics

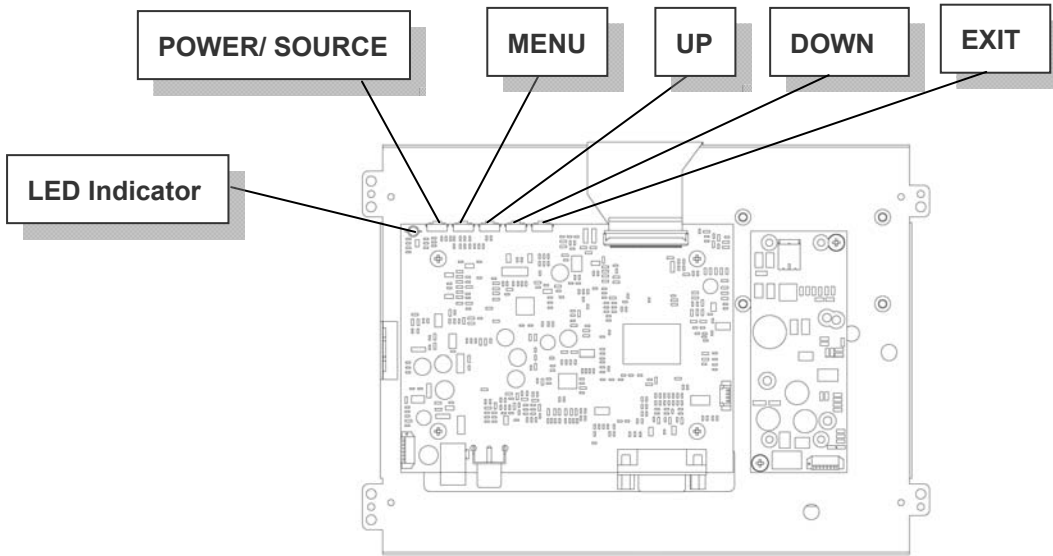
Parameter	Symbol	I/O	Min	Typ	Max	Unit	Note
Input Voltage	V <sub>in</sub>	I	+10	+12	+14	V	
Total Current	I <sub>in</sub> (+12V)	I	-	610	-	mA	±15%
Power Consumption		I	-	7.32	-	W	@+12V
Output Voltage	V <sub>DD</sub>	O	+3.2	+3.3	+3.4	V	I=10mA
Video Input Signal	Video in	I	-	1.0	-	V <sub>p-p</sub>	@75Ω
Analog RGB Input Signal	Analog RGB in	I	0.6	0.7	1.0	V <sub>p-p</sub>	@75Ω

### 10.2 Support Display Mode Characteristics

Dots per inch	H	Unit	Polarity	V	Unit	Polarity	Note
640 × 480	31.469	KHz	Negative	59.941	Hz	Negative	
800 × 600	37.879	KHz	Positive	60.317	Hz	Positive	
1024 × 768	48.363	KHz	Negative	60.004	Hz	Negative	

## 11. Key Function by OSD

### 11.1 Menu Operation

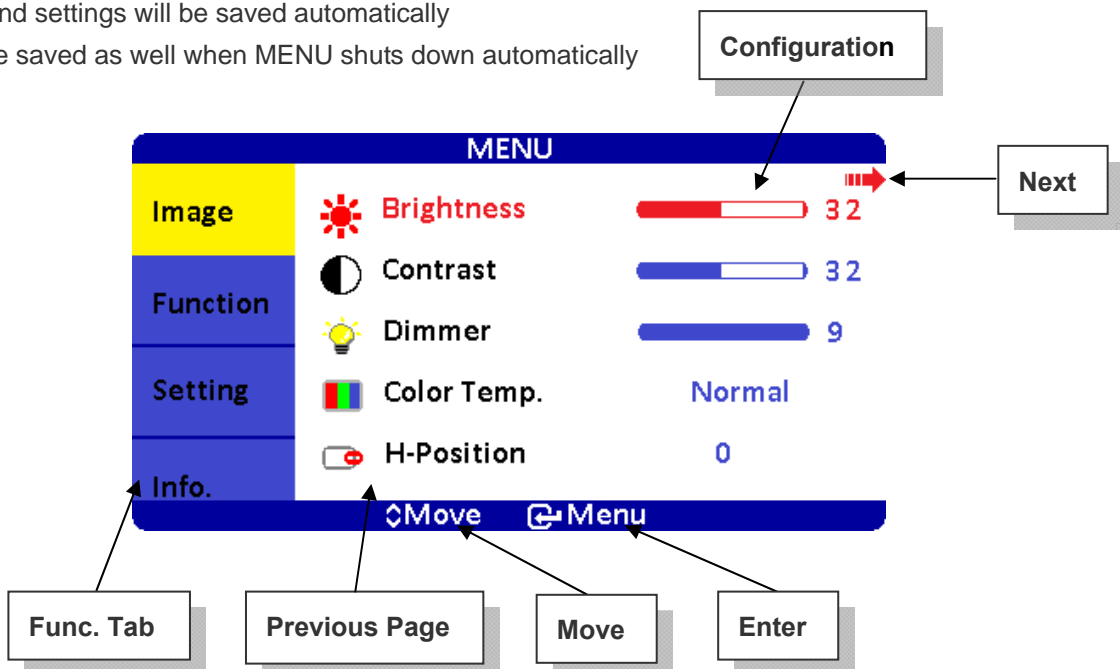


#### OSD ICON Instructions :

1. POWER/SOURCE : Power On/Off (※Press for 3 secs to turn off)
2. MENU / ENTER : (After turning on MENU, only ENTER is available)
3. UP : Move Upward / Increase Value / Option Switch
4. DOWN : Move Downward / Decrease Value / Option Switch
5. EXIT : Return to Previous Page
6. LED Indicator
  - Waiting : Flickering Green
  - Power ON : Green
  - Power OFF : Red

#### Save OSD Setting:

1. EXIT MENU and settings will be saved automatically
2. Settings will be saved as well when MENU shuts down automatically



## Overview of the Menu :



### Image (VGA)

Indicator	Meaning	Default	Adjustable range	Remark
	Brightness	21	0~63	Adjust-Bar
	Contrast	43	0~63	Adjust-Bar
	Dimmer	9	0~9	Adjust-Bar
	Color Temp.	Normal	Normal / Warm / Cool	
	H-Position	-	The adjusting value range depends on each resolution mode	Note1
	V-Position	-	The adjusting value range depends on each resolution mode	Note1
	Clock	-	-49~+49	Note2
	Phase	-	0~63	Note1
	Auto	Depend on the Signal		
	Exit			

Note1 Values will be different through signal source

Note2 Values will be different after Auto and Reset



### Image (Video)

Indicator	Meaning	Default	Adjustable range	Remark
	Brightness	30	0~63	Adjust-Bar
	Contrast	30	0~63	Adjust-Bar
	Color	53	0~63	Adjust-Bar
	Tint	15	0~31	
	Sharpness	8	0~15	Adjust-Bar
	Dimmer	9	0~9	Adjust-Bar
	Exit			



## Function

ICON	Meaning	Function	Default	Status	Description	Remark
	OSD Show Status	Information of input source	On	On	Show input source	
				Off	Hide input source	
	Blue Screen	Select blue/ black screen when no input signal is detected.	On	On	Show blue screen when no input.	
				Off	Show black screen when no input.	
	Auto Power On	Modules turns on automatically without power key input.	On	On	Auto	
				Off	Manual	
				Auto Save	Power off , the last state	
	Detect Source	Auto detect input source.	Off	On	Auto-detect signal source	
				Off	Manual switch signal source	
	Auto Power Saving	Modules go standby when no input source is detected.	Off	6s / 15s / 30s	Go standby by settings when no input	LED indicator: Flickering Green
				Off	Show no signal when no input	LED indicator: Green
	Auto Sleep	Modules go off when set timing is out.	Off	15M / 30M / 60M / 120M	Go off by time setting	LED indicator: Red Press Power Key back to life.
				Off	Turn off sleep mode	
	Exit					

**Note : After configuration is set, RESET won't restore to default setting.**



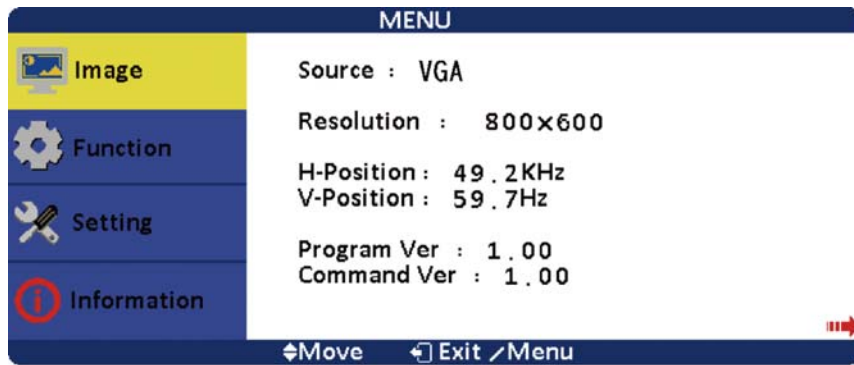
## Setting

Indicator	Meaning	Default	Adjustable range	Remark
	Mirror	Off	On / Off	Left-right reversal
	Upside down	Off	On / Off	Upside down
	Scan	Over Scan	Over Scan/Under Scan	CVBS Only, Note 1
	Language	English	English / 中文 / 日本語 / 한국의 / Française / Deutsch / Italiano / Española / Português	Note 1
	OSD Transparent	0	0~7	Menu Transparent
	Reset			Restore to default
	Exit			

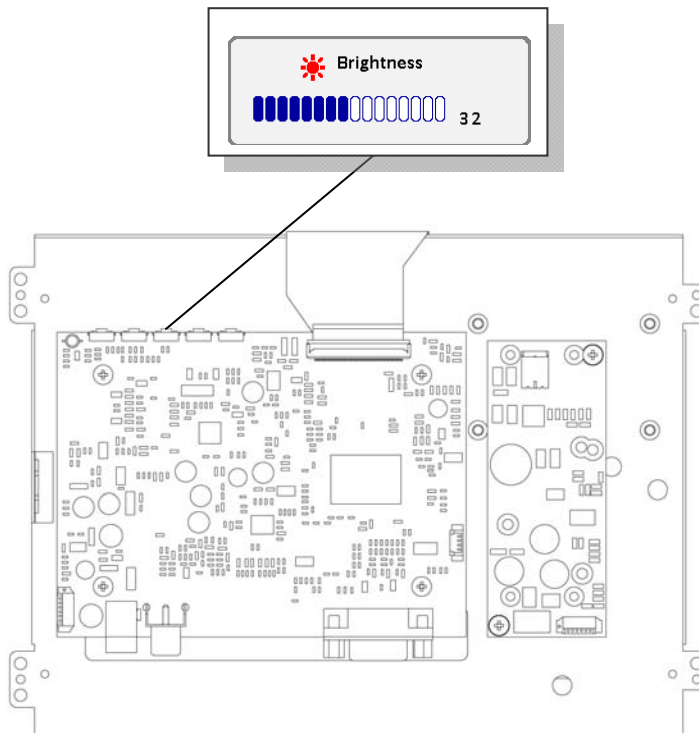
**Note 1: Press MENU to store changes when OSD adjustment is done.**



Info.



Hot Key When OSD Menu is Off :





**Information of Input Source and Functionality :**



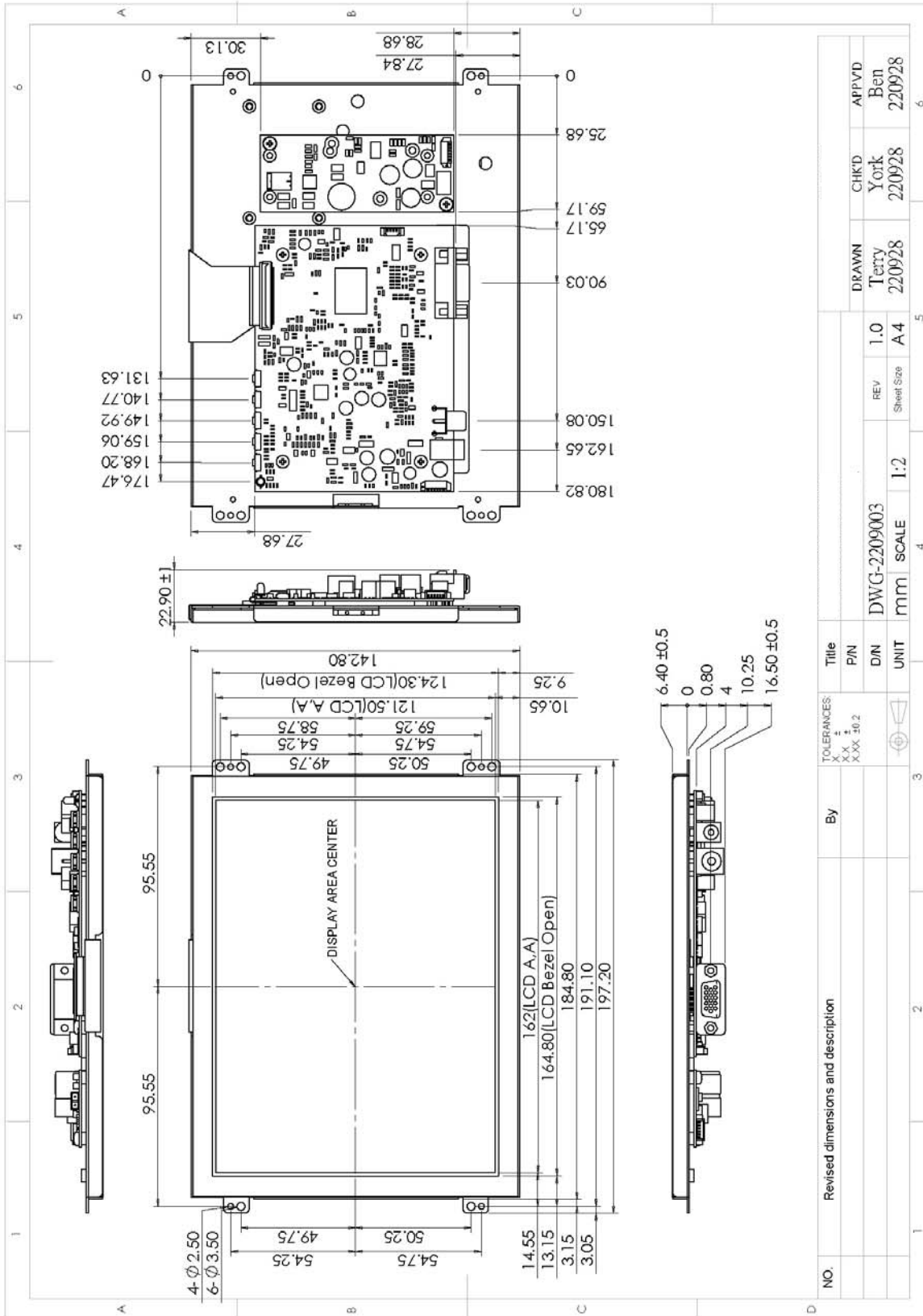
[Source] : Input Signal Switch

**Overview of Input Signals :**

Indicator	Interface
	AV1
	VGA

## 12. Dimension Information

### 12.1 Unit (FCOP0840)



### 13. Appendix

#### 13.1 TFT-LCD Mechanical Specifications

Parameter	Specifications	Unit
Screen Size	8.0 (diagonal)	Inch
Display Format	800 x (R.G.B) x 600	Dot
Active Area	162(W) x 121.5(H)	mm
Pixel Pitch	0.2025(H) x 0.2025(V)	mm
Pixel Arrangement	RGB-stripe	
Surface Treatment	Anti-Glare	

#### 13.2 TFT-LCD Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Remark
Viewing Angle	Horizontal	Left	CR $\geq$ 10	60	70	---	deg
		Right		60	70	---	deg
	Vertical	Top		60	70	---	deg
		Bottom		40	50	---	deg
Contrast Ratio	CR	$\Theta = 0^\circ$	400	500	---	---	
Response time	Rise Fall	Tr	$\Theta = 0^\circ$	---	10	20	ms
		Tf	$\Theta = 0^\circ$	---	15	30	ms
Uniformity	U	$\Theta = 0^\circ$	---	70	---	%	
Brightness	L	$\Theta = 0^\circ$	800	1000	---	cd/m <sup>2</sup>	
White Chromaticity	x	$\Theta = 0^\circ$	0.26	0.31	0.36		
	y	$\Theta = 0^\circ$	0.28	0.33	0.38		
LED Life Time		+25°C	---	20000	---	Hrs	Note

Note: The "LED Life Time" is defined as the module brightness decrease to 50% original.