



## § SPECIFICATION APPROVAL SHEET §

Fdt Tech Module No: **LP101G0BDY-FNR**

---

Description: **10.1" Electromagnetic Touch Screen KIT**

---

SPEC No.: **SAS-1802003**

---

Version: **0.0**

---

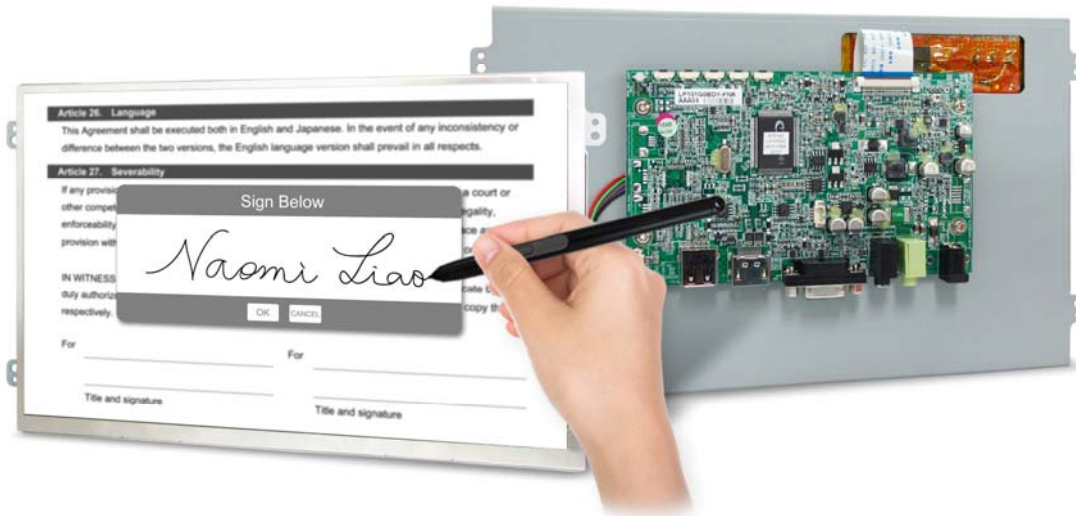
Issue Date: **March 15, 2018**

---

※ This approval sheet contains 18 pages including the cover and appendix.

Customer:	Approved By:
Date:     /     / 18	

Approved By: \_\_\_\_\_      Checked By: \_\_\_\_\_      Designed By: \_\_\_\_\_



## 1. General Description

### 1.1 Features

- 10.1" (1280x800) Digital TFT LCD
- Aspect Ratio: 16:10
- Input Signal VGA / HDMI 1.3a
- Maximum Support Resolution 1920x1080
- Headphone Driver, 46mW@32Ω
- Projected Capacitive Touch
- 5 Key Buttons Controls
- 9 Language OSD Menu
- LED Backlight
- Single Operation Voltage +12V
- Electromagnetic Touch Screen
- Electromagnetic Pen

### 1.2 Applications

- Industrial
- Medical Environment
- Instrument Display
- Kiosk
- Security
- Office Electronics
- Home Application
- Educate Application



## 2. Contents

Contents	Page
<b>1. General Description.....</b>	<b>1</b>
1.1 Features	1
1.2 Applications	1
<b>2.Contents.....</b>	<b>2</b>
<b>3. Specifications.....</b>	<b>3</b>
<b>4. Block Diagram.....</b>	<b>3</b>
<b>5. Order Information.....</b>	<b>4</b>
5.1 Unit	4
<b>6. Accessories (Option).....</b>	<b>5</b>
<b>7. Operation Manual.....</b>	<b>6</b>
7.1 Driver Board Manual	6
<b>8. Pin Description.....</b>	<b>7-9</b>
8.1 DC-In : Pin Assignment of Power Input (DC-Jack Inside Diameter:2.1 $\phi$ Outside Diameter:5.5 $\phi$ Side Entry Type)	7
8.2 VGA : Pin Assignment of Analog RGB Input ( D-Sub 15Pin)	7
8.3 HDMI : Pin Assignment of HDMI-A Type Input (HDMI 1.3a -19Pin Female)	8
8.4 USB : Pin Assignment of Touch USB (USB A Type - Female 2.0mm, Side Entry Type )(Option)	8
8.5 Line-Out : Pin Assignment of Line-Out/Ear Phone (Option) (Outside Diameter:3.5 $\phi$ Side Entry Type)	8
8.6 Line-In : Pin Assignment of Line-In/Ear Phone (Option) (Outside Diameter:3.5 $\phi$ Side Entry Type)	9
<b>9. Absolute Maximum Ratings.....</b>	<b>9</b>
9.1 Absolute Maximum Ratings	9
<b>10. Recommended Operating Conditions.....</b>	<b>9</b>
10.1 Electrical Characteristics	9
10.2 VGA Mode Characteristics	9
<b>11. Electromagnetic Touch Screen Characteristics.....</b>	<b>10</b>
11.1 Mechanical Performance	10
11.2 Electromagnetic Touch Screen Operation System Support	10
<b>12. Electromagnetic Touch Pen Characteristics.....</b>	<b>10</b>
12.1 Mechanical Performance	10
<b>13. Key Function by OSD.....</b>	<b>11-14</b>
13.1 Menu Operation	11-14
<b>14. Dimension Information.....</b>	<b>15-16</b>
14.1 Unit (LP101G0BDY-FNR)	15
14.2 Electromagnetic Touch Pen Dimension	16
<b>15. Appendix.....</b>	<b>17</b>
15.1 TFT-LCD Mechanical Specifications	17
15.2 TFT-LCD Optical Characteristics	17

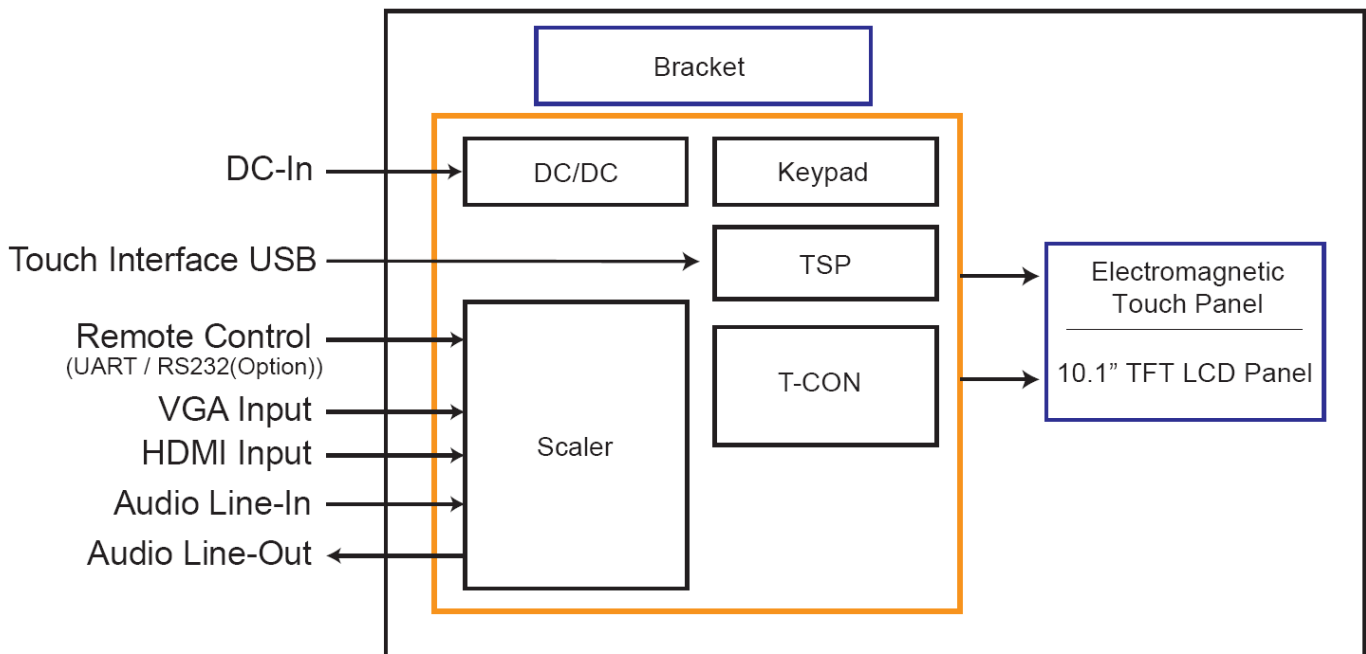
## 3. Specifications

LCD	
Panel Size	10.1"
Resolution (Pixels)	1280x800
Luminance	300 cd/m <sup>2</sup>
Contrast Ratio	800
View Angle	85 / 85 / 85 / 85
LED Life Time	20K (Min)
Power Requirement	
Power Input (DC Jack 2.1 $\phi$ )	+12 V <sub>DC</sub>
Power Consumption	6.96W
Touch Screen	
Interface	USB
Support OS	Windows 7 / 8 / 10

Input Signal		
VGA	D-Sub15	
HDMI	1.3a	
Audio		
Headphone Driver (Line In & out)	46mW@32 $\Omega$ Phone Jack $\phi$ 3.5	
Mechanical		
Key	5 Buttons	
Serial Remote Control	UART / RS232 (Option)	
Environment		
Temperature Range	Operating	0 ~ +50 $^{\circ}$ C
	Storage	-20 ~ +60 $^{\circ}$ C
High Temperature & High Humidity (Non-condensing)	Operating	40 $^{\circ}$ C / 90%

## 4. Block Diagram

LP101G0BDY-FNR





## 5. Order Information

### 5.1 Unit

Item	LP101G0BDY-FNR	Unit	Remark
VGA	⊙		
HDMI	⊙		
Touch Panel Type	Electromagnetic		
Touch Screen Interface	USB		
Electromagnetic Pen	⊙		Note 2
Headphone Driver (Line In & out)	⊙		
5 Keys	⊙		
Dimensions	244.5 x 150.9 x 22.83	mm	
Weight	496	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 FDT.

## 6. Accessories (Option)

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



A. LASTD12033-FDR



B. LAACD18000-FDR



C. LACABLE068-FDR



D. LAVGA18000-FDR



E. LAUSB18000-FDR

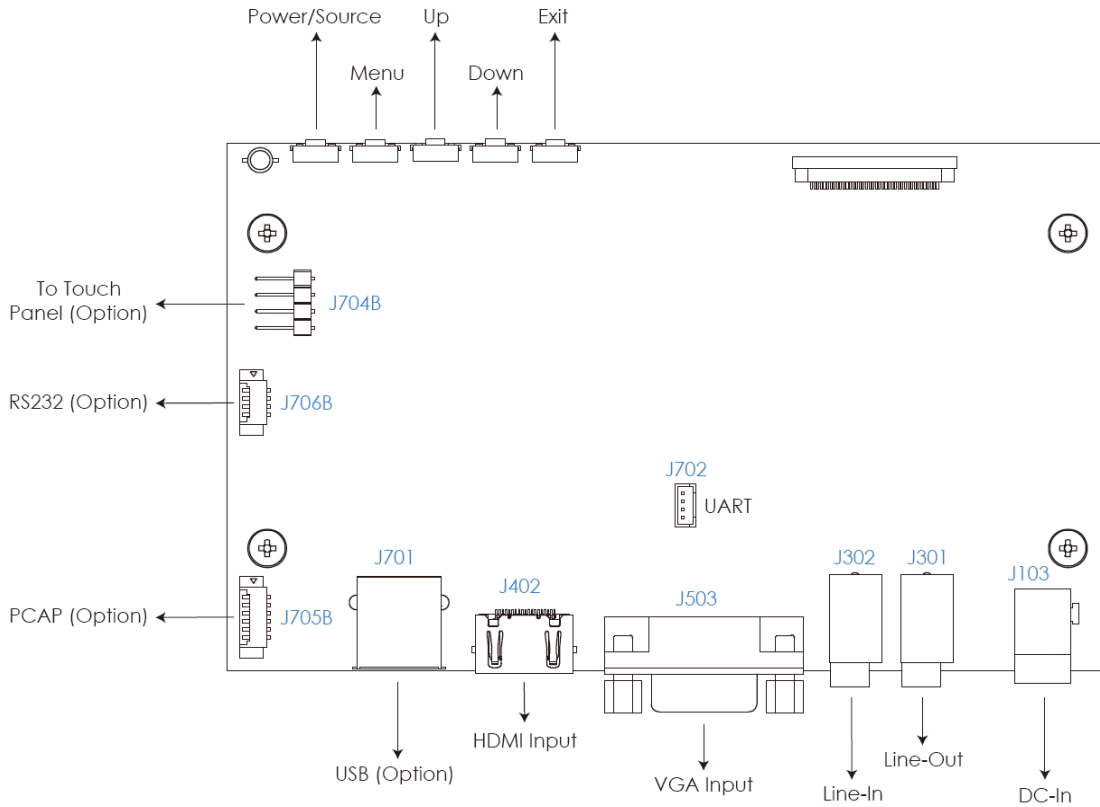


F. LACABLE070-FDR

- 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. Power Cord (L:1800mm, Plug Type B for USA)
- C. HDMI Cable (L:1800mm)
- D. VGA Cable (L:1800mm)
- E. USB Cable (L:1800mm)
- F. AUDIO Cable (L:1800mm)

## 7. Operation Manual

### 7.1 Driver Board Manual



FDT

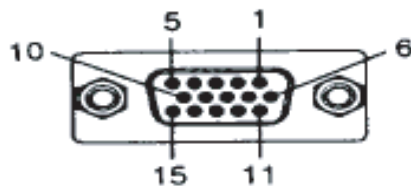
## 8. Pin Description

### 8.1 DC-In : Pin Assignment of Power Input (DC-Jack Inside Diameter:2.1 $\phi$ Outside Diameter:5.5 $\phi$ Side Entry Type)

Pin No.	Symbol	I/O	Description	Remark
1	DC-In	I	+12Vdc Input Voltage	
2	GND	-	Power Ground	

### 8.2 VGA : 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	GND	-	Ground	
5	VGA-Det	I	VGA Detect	
6	AGND	-	Analog Ground	
7	AGND	-	Analog Ground	
8	AGND	-	Analog Ground	
9	VGA5V	-	VGA +5Vdc Input	
10	GND	-	Ground	
11	GND	-	Ground	
12	VGA_SDA	-	DDC2 Data	
13	HS_IN	I	TTL Horizontal sync.	
14	VS_IN	I	TTL Vertical sync.	
15	VGA_SCL	-	DDC2 Clock	



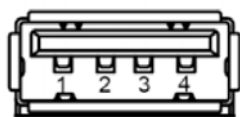


**8.3 HDMI : Pin Assignment of HDMI-A Type Input (HDMI 1.3a -19Pin Female)**

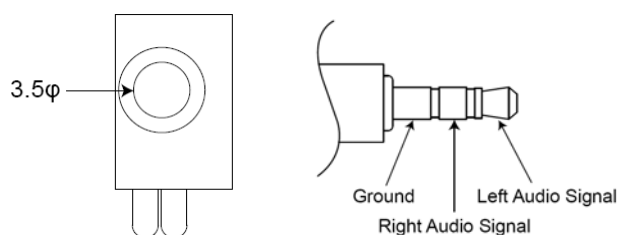
Pin No.	Symbol	I/O	Description	Remark
1	DATA2+	I	Positive HDMI Input for B Link Data Channel 2	
2	DET_HDMI	-	HDMI Detect	
3	DATA2-	I	Negative HDMI Input for B Link Data Channel 2	
4	DATA1+	I	Positive HDMI Input for B Link Data Channel 1	
5	GND	-	Ground	
6	DATA1-	I	Negative HDMI Input for B Link Data Channel 1	
7	DATA0+	I	Positive HDMI Input for B Link Data Channel 0	
8	GND	-	Ground	
9	DATA0-	I	Negative HDMI Input for B Link Data Channel 0	
10	DCLK+	I	Positive HDMI Input for B Link Clock Channel	
11	GND	-	Ground	
12	DCLK-	I	Negative HDMI Input for B Link Clock Channel	
13	NC	-	No Connection	
14	NC	-	No Connection	
15	HDMI_SCL	I	DDC2 Clock	
16	HDMI_SDA	I	DDC2 Data	
17	GND	I	DDC/CEC Ground	
18	HDMI5V	I	HDMI +5Vdc Input	
19	HDMI_HPD	I	Hot Plug Detect	

**8.4 USB : Pin Assignment of Touch USB (USB A Type - Female 2.0mm, Side Entry Type )(Option)**

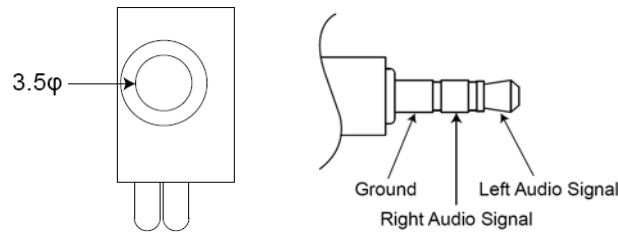
Pin No.	Symbol	I/O	Description	Remark
1	VBUS	-	USB VCC	
2	D-	-	DATA (-)	
3	D+	-	DATA (+)	
4	DGND	-	Digital Ground	



**8.5 Line-Out : Pin Assignment of Headphone Line-Out (Outside Diameter:3.5 φ Side Entry Type)**



**8.6 Line-In : Pin Assignment of Headphone Line-In (Outside Diameter:3.5 φ Side Entry Type)**



## 9. Absolute Maximum Ratings

**9.1 Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit	Remark
Input Voltage	V <sub>in</sub>	+11	+13.5	V	
Analog RGB Input Signal	Analog RGB in	0.5	2.0	V <sub>p-p</sub>	
Digital Input Signal	TTL	0.3	3.6	V	
HDMI Input Signal		-	165	MHz	
Operating Temp.		0	+50	°C	
Storage Temp.		-20	+60	°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	DC-in	I	+11.5	+12	+13	V	
Total Current	I-in	I	-	580	-	mA	+12V
Power Consumption		I	-	6.96	-	W	±15% @Without Headphone
Output Voltage	V <sub>DD</sub>	O	3.2	3.3	3.4	V	
Analog RGB Input Signal	Analog RGB in	RGB	I	0.7	-	V <sub>p-p</sub>	@75Ω
HDMI Input Signal			-	-	165	MHz	

**10.2 VGA Mode Characteristics**

Dots per inch	H	Unit	Polarity	V	Unit	Polarity	Note
640 × 480	31.47	KHz	Positive	59.9	Hz	Positive	
800 × 600	37.88	KHz	Positive	60.3	Hz	Positive	
1024 × 768	48.36	KHz	Positive	60	Hz	Positive	
1280 × 800	49.2	KHz	Positive	59.7	Hz	Positive	
1280 × 1024	63.98	KHz	Positive	60	Hz	Positive	
1600 × 1200	75	KHz	Positive	60	Hz	Positive	
1920 × 1080	67.5	KHz	Positive	60	Hz	Positive	

## 11. Electromagnetic Touch Screen Characteristics

### 11.1 Mechanical Performance

Parameter	Specifications
Technology	Electro-magnetic
Interface	USB
Resolution	0.01mm / 2560 LPI
Coordinate Accuracy	±0.4mm
Detectable Pen Tilt	Up to 60° from vertical
Position Report Rate	190 PPS

### 11.2 Electromagnetic Touch Screen Operation System Support

OS	Version	Interface
Windows	Windows 7	USB
	Windows 8 / 8.1	
	Windows 10	

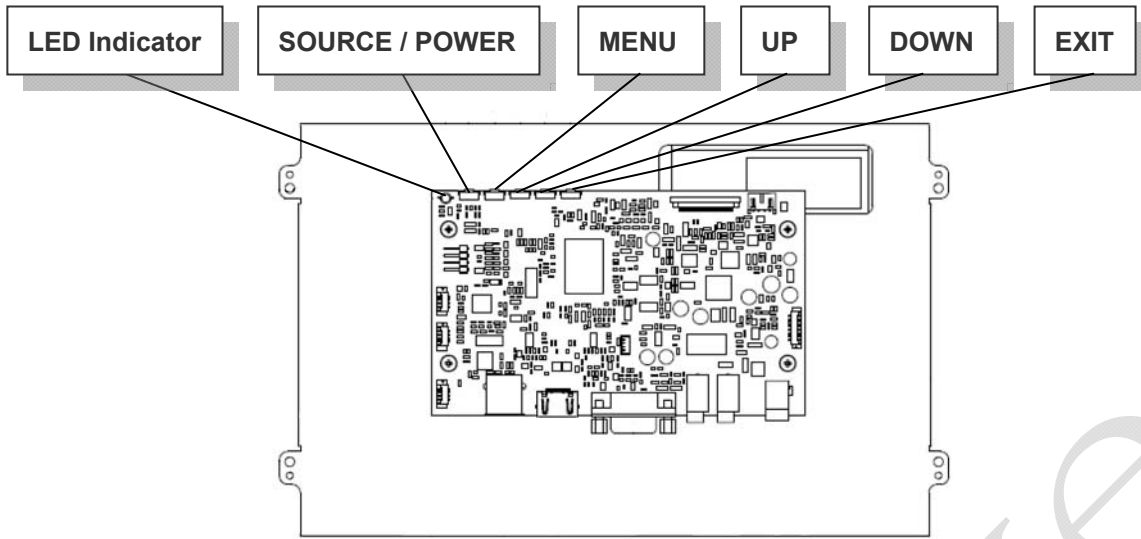
## 12. Electromagnetic Touch Pen Characteristics

### 12.1 Mechanical Performance

Parameter	Specifications
Technology	Battery free Electro-magnetic Pen
Pressure Resolution	2048 levels
Pressure Range	20g : 1~200 Level , 2048 level ≤ 500g:
Stylus Button	1 button
Coordinate Jitters	1-point max
Stylus Barrel Material	PC
Stylus Pulling Force	>15KG
Stylus Bending Force	>8.5KG
Click Life	1000K Times
Tip Abrasion	50K Times( Abrasion<1mm )
Button Life	200K Times

## 13. Key Function by OSD

### 13.1 Menu Operation

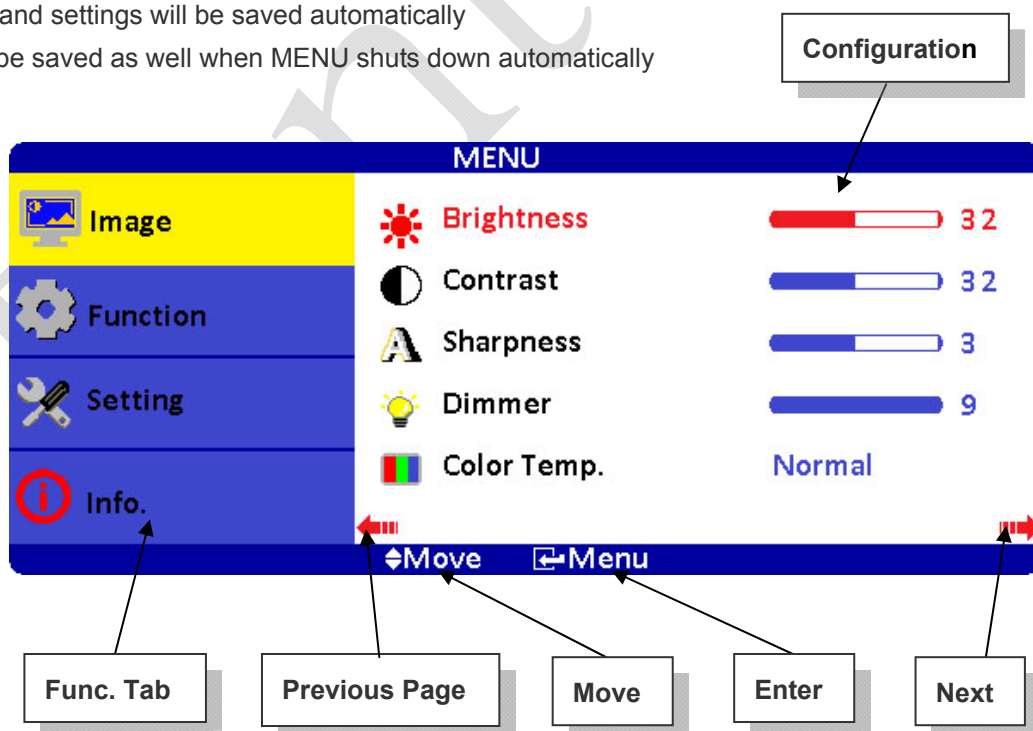


### OSD ICON Instructions :

1. POWER : 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

Indicator	Meaning	Default	Adjustable range	Remark
	Brightness	32	0~63	Adjust-Bar
	Contrast	32	0~63	Adjust-Bar
	Sharpness	3	1~5	Adjust-Bar
	Dimmer	15	0~15	Adjust-Bar
	Color Temp.	Normal	Normal / Warm / Cool	
	H-Position	0	-25~+25	VGA only
	V-Position	0	-25~+25	VGA only
	Clock	0	-25~+25	VGA only
	Phase	32	0~63	VGA only
	Auto	By different resolution		VGA only
	Exit			



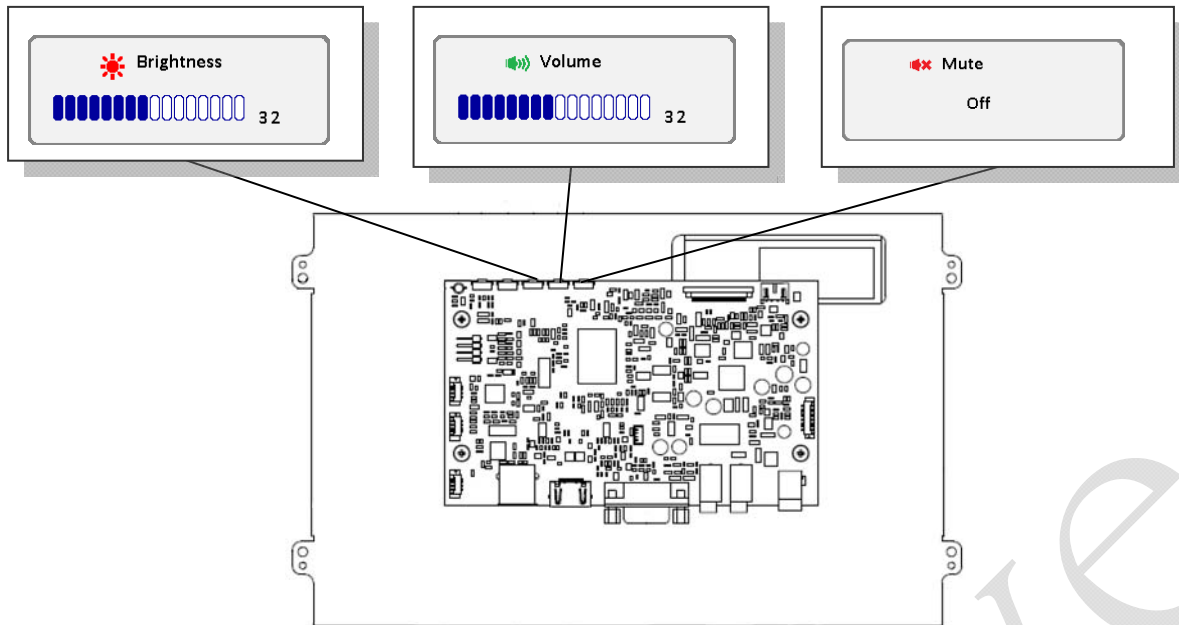
### Function

ICON	Meaning	Default	Adjustable range	Function	Remark
	Show Status	On	On / Off	Information of input source	ON: Show ; OFF: Hidden
	Blue Screen	On	On / Off	No signal input shows blue or black screen.	ON: Blue ; OFF: Black
	Auto Power On	On	On / Off	Modules turns on automatically without power key input.	ON: Auto ; OFF: Manual
	Detect Source	On	On / Off	Auto detect input source.	ON: Auto ; OFF: Normal
	Auto Power Saving	Off	6s / 15s / 30s / Off	Modules go ready when no input source is detected.	ON: Auto ; OFF: Normal
	Auto Sleep	Off	15M / 30M / 60M / Off	Modules go sleep when set timing is out.	ON: Auto ; OFF: Normal
	Exit				

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



## Hot Key When OSD Menu is Off :



## Information of Input Source and Functionality :

[Source] : Input Signal Switch

## Overview of Input Signals :

Indicator	Interface
	VGA
	HDMI







## 15. Appendix

### 15.1 TFT-LCD Mechanical Specifications

Parameter	Specifications	Unit
Screen Size	10.1 (diagonal)	Inch
Display Format	1280 x (R.G.B) x 800	Dot
Active Area	216.96 (H)× 135.6(V)	mm
Pixel Pitch	0.1695(H) x 0.1695(V)	mm
Pixel Arrangement	RGB stripe	

### 15.2 TFT-LCD Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Remark
Viewing Angle	Horizontal	Left	75	85	---	deg	
		Right	75	85	---	deg	
	Vertical	Top	75	85	---	deg	
		Bottom	75	85	---	deg	
Contrast Ratio	CR	At optimized Viewing angle	600	800	---	---	
Luminance without PCAP	L		250	300	---	cd/m <sup>2</sup>	
LED Life Time		25°C	20000	---	---	Hrs	Note

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