User Manual

IDK-1107WP Series

TFT-LCD 7" WVGA (LED Backlight) with Projected Capacitive Touchscreen

ADVANTECH

Enabling an Intelligent Planet

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A Message to the Customer

Advantech Customer Services

Each and every Advantech product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Advantech equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Advantech has come to be known.

Your satisfaction is our primary concern. Here is a guide to Advantech's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

So please consult this manual first. If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Advantech products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Advantech engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.

4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Warnings, Cautions, and Notes

Warning! _Warnings indicate conditions, which if not observed, can cause personal injury!_

Caution! _Cautions are included to help you avoid damaging hardware or losing data. e.g._

There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! _Notes provide optional additional information._

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
8. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
9. All cautions and warnings on the equipment should be noted.
10. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
11. Never pour any liquid into an opening. This may cause fire or electrical shock.
12. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
13. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
14. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -25° C (-13° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT.
15. This equipment has been tested and found to comply with the requirements for a Class A digital device.Operation of this equipment in a residential area is likely to cause harmful interference to radio communications; in such events, users are required to correct this interference.
16. This equipment is sold without a power cord. Users are advised to purchase a CCC-certified power cord.

CAUTION: THE COMPUTER IS PROVIDED WITH A BATTERY-POWERED REAL-TIME CLOCK CIRCUIT. THERE IS A DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Contents

Chapter 1

General Description and Features

This manual is for the 7" inch color TFT LCD module IDK-1107WP-50WVA1E which is designed with a wide viewing angle, wide operating temperature, and long life LED backlights which are well suited to display units for Industrial Applications. An LED driving board for the backlight unit is included in this panel and the structure of the LED unit is replaceable. IDK-1107WP-50WVA1E has a built in timing controller and LVDS interface. The screen format is intended to support the SVGA (800(H) x 480(V)) screen and 16.2M (RGB 8-bits) or 262k colors (RGB 6-bits). IDK-1107WP-50WVA1E is a RoHS compliant product.

1.1 Display Characteristics

The following table items are display characteristics under 25°C conditions.

Items	Unit	Specifications
Screen Diagonal	[inch]	7.0 (177.8mm)
Active Area	[mm]	152.40(H) x 91.44(V)
Pixels H x V		800x3(RGB) x 480
Pixel Pitch	[mm]	0.1905 x 0.1905
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		TN, Normally White
Nominal Input Voltage VDD	[Volt]	3.3 typ
Typical Power Consumption	[Watt]	3.56 typ.
Weight	[Grams]	160 ± 10
Physical Size	[mm]	187.6(W) x 126.64(H) x 12.36(D) typ.
Electrical Interface		1 channel LVDS
Surface Treatment		Clear, Haze: <2%
Support Color		262K(6-bit) / 16.2M(8-bit)
Temperature Range		
Operating	[°C]	-20 to +70 (panel surface temperature)
Storage (Non-Operating)	[°C]	-40 to +80
RoHS Compliance		RoHS Compliance

1.2 Optical Characteristics

Optical characteristics are measured under stable conditions at 25°C (Room Temperature):

Item	Unit	Conditions		Min.	Typ.	Max.	Note
White Luminance	[cd/m2]	IF= 80mA (center point)		400	500	-	4
Uniformity	%	5 Points			75%		1,5
Contrast Ratio				500	600	-	3
Response Time	[msec]	Rising		-	5	10	
	[msec]	Falling		-	11	16	2
	[msec]	Rising + Falling		-	16	26	
Viewing Angle	[degree]	Horizontal	(Right)	60	70	-	
	[degree]	CR ≥ 10	(Left)	60	70	-	6
	[degree]	Vertical	(Upper)	50	60	-	
	[degree]	CR ≥ 10	(Lower)	50	60	-	

Color/Chromaticity Coordinates (CIE 1931)		Red x		0.645		
		Red y		0.341		
		Green x		0.312		
		Green y	Typ - 0.03	0.625	Typ +0.03	1
		Blue x		0.153		
		Blue y		0.053		
		White x		0.313		
		White y		0.329		
Contrast Gamut	%			72	-	1

Note1 *These items are measured by BM-5A(TOPCON) or CA-1000 (MINOLTA) in the dark room (no ambient light) After 5 minutes operation, the optical properties are measured at the center point of the LCD screen.*

Note2 *Definition of Response Time (White-Black)*
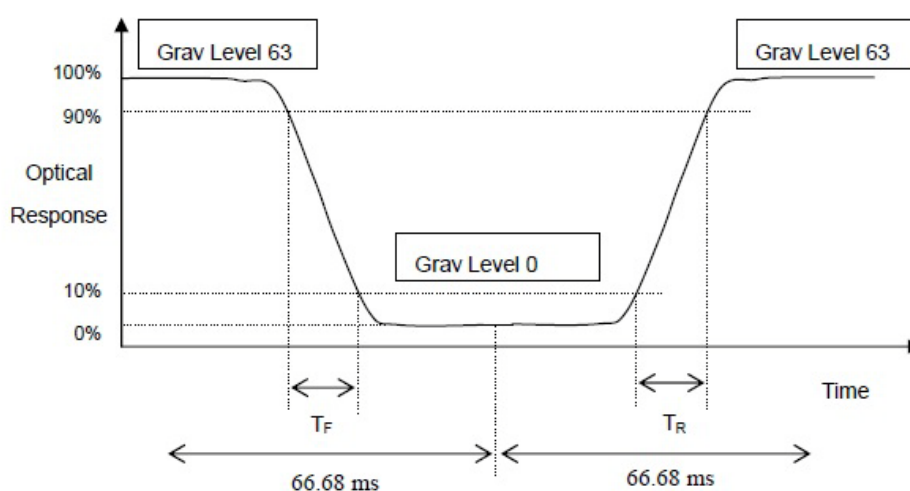
Note3 *Definition of Contrast Ratio*

Contrast ratio is calculated with the following formula :

Contrast Ratio (CR)=(White) Luminance of ON ÷ (Black) Luminance of OFF

Note4 *Definition of Luminance*

Measure the luminance of white state at center point.

Note5 *Definition of Luminance Uniformity*

Measured Maximum luminance [L(MAX)] and Minimum luminance [L(MIN)] on the 9 points

Luminance Uniformity is calculated with the following formula:

$\Delta L =[L(MIN) / L (MAX)] X 100\%$

Note6 *Definition of Viewing Angle*
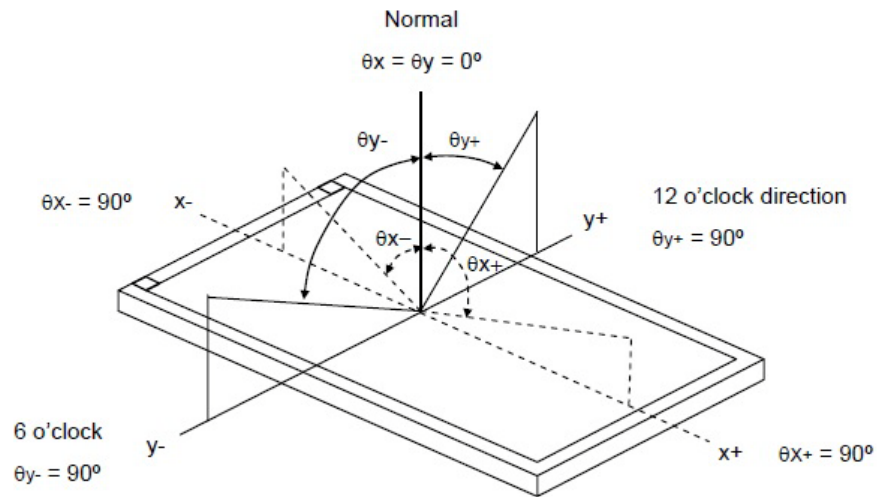
1.3 Functional Block Diagram

The following diagram shows the functional block of the 7 inches Color TFT-LCD Module:
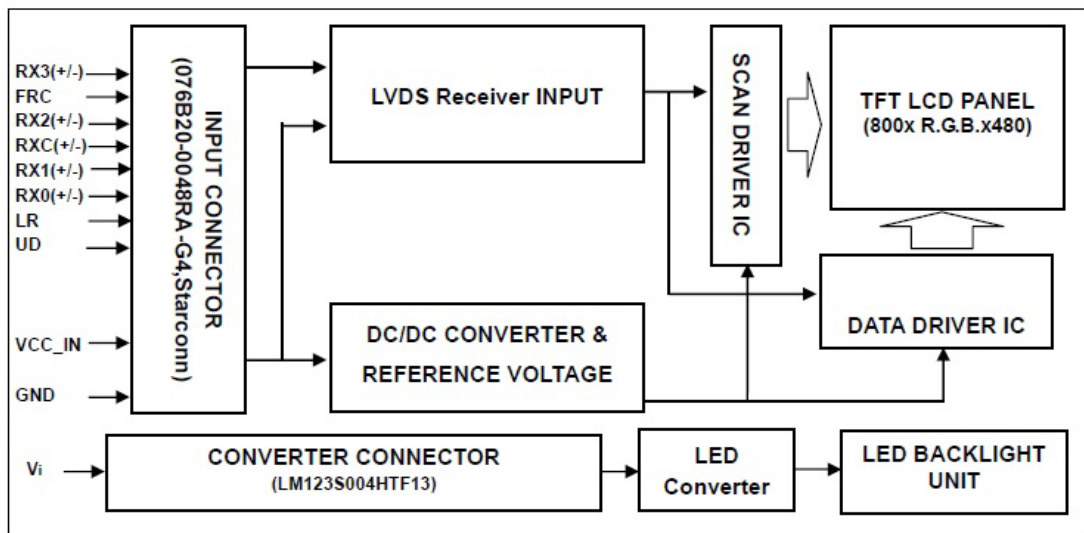
1.4 Absolute Maximum Ratings

1.4.1 Absolute Ratings of TFT LCD Module

Item	Symbol	Min.	Max.	Unit
Power Supply Voltage	Vcc	-0.3	+4	[Volt]

1.4.2 Absolute Ratings of Environment

Item	Symbol	Min.	Max.	Unit
Operating Temperature	TOP	-20	+70	[oC]
Operation Humidity	HOP		85	[%RH]
Storage Temperature	TST	-40	+80	[oC]
Storage Humidity	HST		85	[%RH]

Note 1: *Maximum Wet-Bulb should be 38°C and no condensation.*

Note 2: *The module should be inspected after 1 hour storage in normal conditions (15~35°C, 45~65%RH).*

1.5 Dimensions

R7,00(X4)

187.60±0.3(Cover lens Outline)

153.60±0.2(Cover lens View Area)

17.00

17.00

92.64±0.2(Cover lens View Area)

126.64±0.3(Cover lens Outline)

9.53

12.36

4.5 (Max.)

Black Printing area

30.00 (STIFFENER)

40.96±3.0

40.50

74.28±1.0

9.00

165.00±0.3(LCM OUtline)

14.64

104.00±0.3(LCM OUtline)
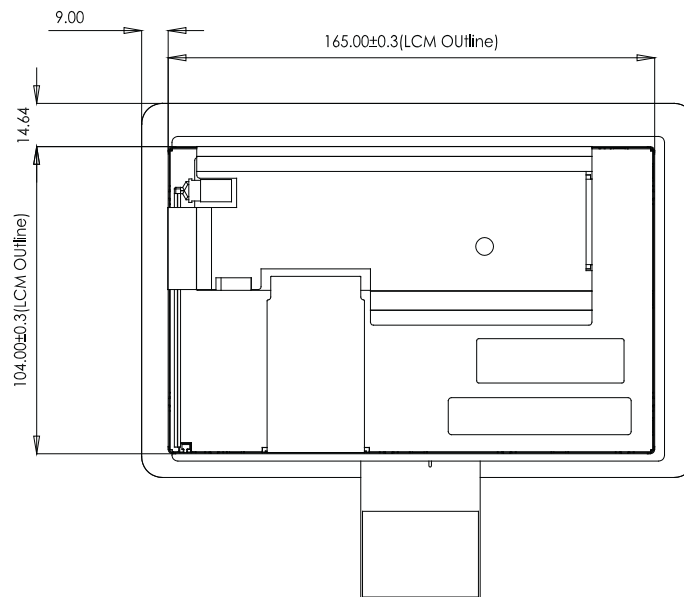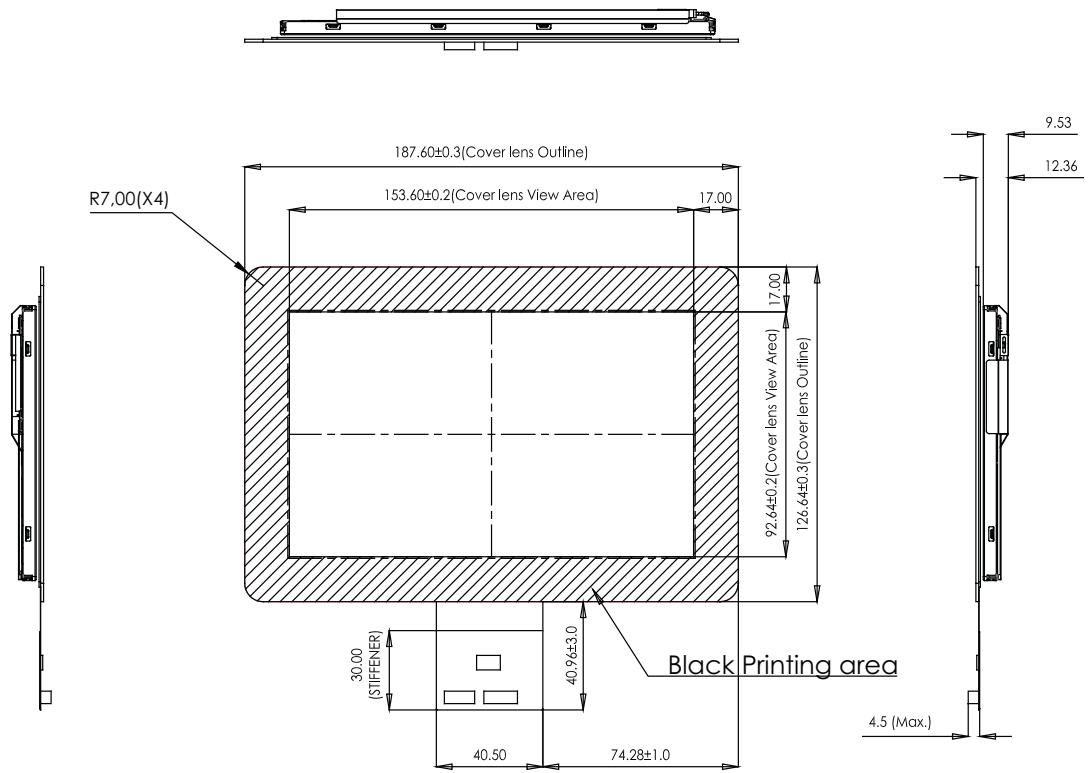
[Unit: mm]

Chapter 2

Electrical Characteristics

2.1 TFT LCD Module

2.1.1 Power Specification

Table 2.1: Power Specification							
Symbol	Parameter		Min.	Typ.	Max.	Unit	Remark
Vcc	Power Supply Voltage		3.0	3.3	3.6	V	
I$_{RUSH}$	Rush Current				1.5	A	
	Power Supply Current	White		140		mA	3
		Black		170		mA	3

Note 1: The assembly should be always operated within the above ranges.

Note 2: Measurement condition:
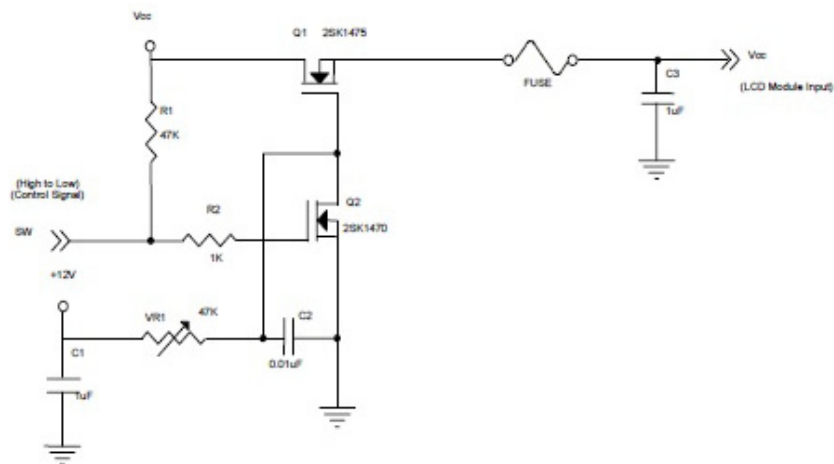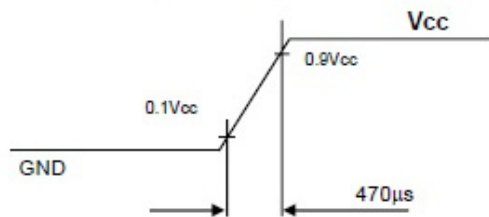
Note 3: The specified power supply current is under the conditions at Vcc=3.3V, Ta=25± 2oC, fv=60Hz, whereas a power dissipation check pattern below is displayed.

2.1.2 Signal Electrical Characteristics

Table 2.2: Signal Electrical Characteristics						
Symbol	Item	Min.	Typ.	Max.	Unit	Remark
VTH	Differential Input High Threshold	-	-	100	[mV]	VCM=1.2V
VTL	Differential Input Low Threshold	-100	-	-	[mV]	VCM=1.2V
VCM	Common Mode Voltage		1.2		[V]	

2.2 Backlight Unit

2.2.1 Parameter Guideline for LED Backlight

Following characteristics are measured under a stable condition using an inverter at 25°C (Room Temperature):

Table 2.3: Parameter Guideline for LED Backlight							
Parameter		**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Remark**
Converter Power Supply Voltage		V_i	10.8	12	13.2	V	
Converter Power Supply Current		I_i	-	0.25	-	A	@ Vi=12V (Duty 100%)
Converter Power Consumption		P_{LED}	-	3	-	W	@ Vi=12V (Duty 100%)
EN Control Level	Backlight on		2.0	-	3.3	V	
	Backlight off		0	-	0.8	V	
PWM Control Level	PWM High Level		2.0	-	3.3	V	
	PWM Low Level		0	-	0.15	V	
PWM Control Duty Ratio			20		100	%	
PWM Control Frequency		f_{PWM}	190	200	210	Hz	
LED Life Time		L_L	50,000			Hrs	

Note 1: *LED current is measured by utilizing a high frequency current meter as shown below:*

Note 2: *The lifetime of the LED is defined as the time when it continues to operate under the conditions at Ta=25±2°C and I_{LED}=50mADC (LED forward current) until the brightness becomes <=50% of its original value.*

Chapter 3

Signal Characteristics

3.1 Signal Description

LVDS is a differential signal technology for LCD interface and high speed data transfer device. The connector pin definition is as below.

Note: "Low" stands for 0V. "High" stands for 3.3V. "NC" stands for "No Connected."

3.1.1 Signal Description

Table 3.1: Symbol Description		
Pin No.	Symbol	Description
1	RX3+	LVDS differential data input Pair 3
2	RX3-	
3	NC	No connected
4	FRC	Dithering control setting When FRC=H, the width of data input 8 bits When FRC=L, the width of data input 6 bits and set Dx0 and Dx1 to logical low (Default pull low)
5	GND	Ground
6	RXC+	LVDS differential Clock input Pair
7	RXC-	
8	GND	Ground
9	RX2+	LVDS differential data input Pair 2
10	RX2-	
11	GND	Ground
12	RX1+	LVDS differential data input Pair 1
13	RX1-	
14	GND	Ground
15	RX0+	LVDS differential data input Pair 0
16	RX0-	
17	LR	Shift direction of Source Driver IC internal shift register is controlled by this pin as show below: LR=H SO1 ->…… SO1200 (Default pull high) LR=L SO1200 ->…… SO1
18	UD	Gate Driver Up/Down scan setting When UD=H, reverse scan When UD=L, normal scan (Default pull low)
19	VCC_IN	Digital power supply (+3.3V)
20	VCC_IN	Digital power supply (+3.3V)

Note: User's connector Part No.: 076B20-0048RA-G4, Starconn, or equivalent.

3.1.2 Backlight Signal Description

Pin No.	Symbol	Description	Note
1	V_i	Converter input voltage	
2	ADJ	Backlight adjust	
3	EN	Enable pin	
4	V_{GND}	Converter ground	

Note: User's connector Part No.: LM123S004HTF13, 4 PIN, UNE.

3.2   The Input Data Format

3.2.1   SEL68
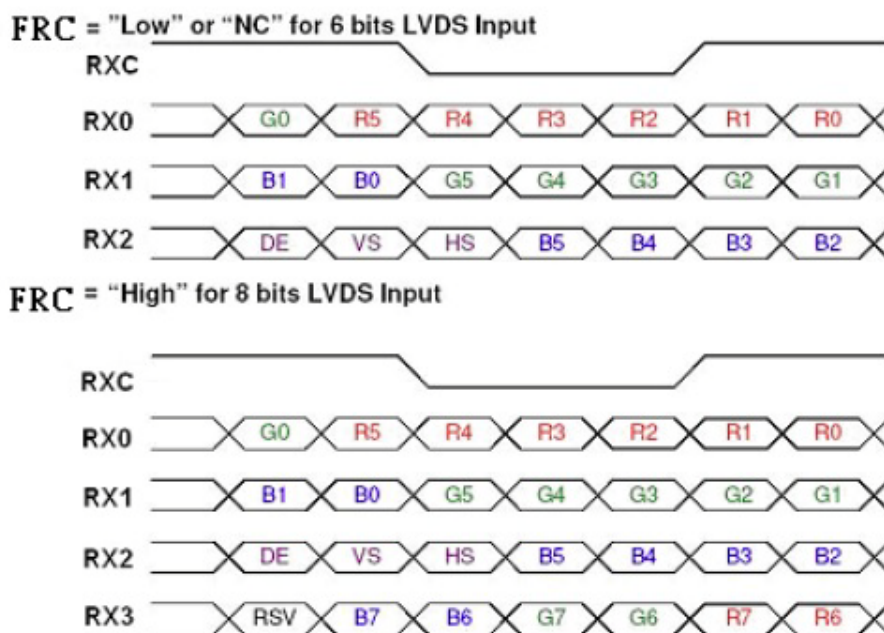
Note1: *Please follow PSWG.*
Note2: *R/G/B data 7:MSB, R/G/B data 0:LSB*

Signal Name	Description	Remark
R7	Red Data 7 (MSB)	Red-pixel Data Each red pixel's brightness data consists of these 8 bits pixel data.
R6	Red Data 6	
R5	Red Data 5	
R4	Red Data 4	
R3	Red Data 3	
R2	Red Data 2	
R1	Red Data 1	
R0	Red Data 0 (LSB)	
G7	Green Data 7 (MSB)	Green-pixel Data Each green pixel's brightness data consists of these 8 bits pixel data.
G6	Green Data 6	
G5	Green Data 5	
G4	Green Data 4	
G3	Green Data 3	
G2	Green Data 2	
G1	Green Data 1	
G0	Green Data 0 (LSB)	

B7	Blue Data 7 (MSB)
B6	Blue Data 6
B5	Blue Data 5
B4	Blue Data 4
B3	Blue Data 3
B2	Blue Data 2
B1	Blue Data 1
B0	Blue Data 0 (LSB)

Blue-pixel Data
Each blue pixel's brightness data consists of these 8 bits pixel data.

RxCLKIN+ RxCLKIN-	LVDS Clock Input
DE	Display Enable
VS	Vertical Sync
HS	Horizontal Sync

Note: *Output signals from any system shall be low or Hi-Z state when VDD is off.*

3.3 Interface Timing

3.3.1 Timing Characteristics

Table 3.2: Timing Characteristics							
Parameter		**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Condition**
Clock frequency		$1/T_{Clock}$	27	29.5	33	MHz	
Vertical Section	Period	T_V	490	500	550	T_H	
	Active	T_{VD}		480			
	Blanking	T_{VB}	10	20	70		
Horizontal Section	Period	T_H	930	992	1090	T_{Clock}	
	Active	T_{HD}		800			
	Blanking	T_{HB}	130	192	290		

Note1: *Frame rate is 60 Hz.*

Note2: *Since this assembly is operated in DE only mode, Hsync and Vsync input signals should be set to low logic level. Otherwise, this assembly would operate abnormally.*

3.3.2 Input Timing Diagram
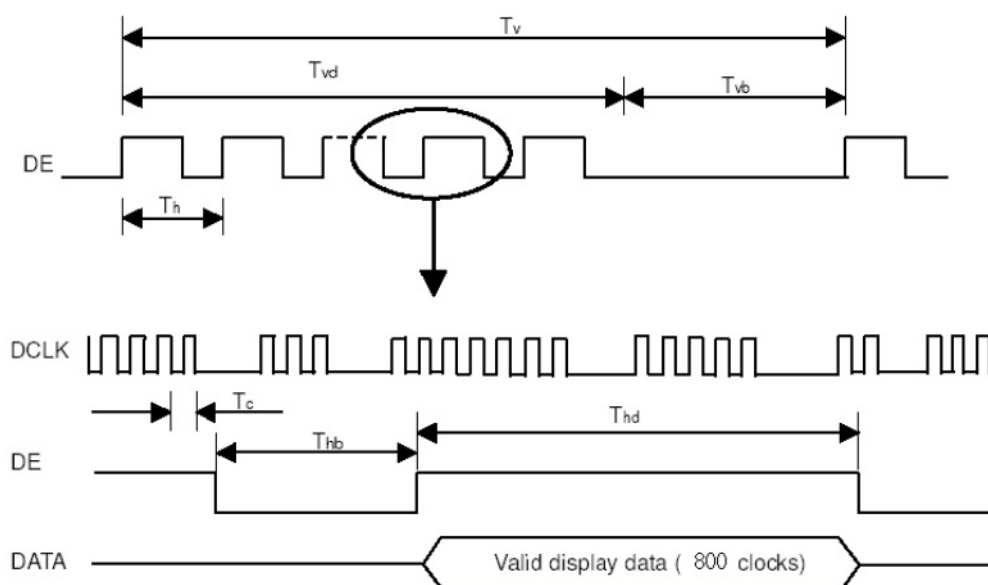
3.4 Power ON/OFF Sequence

VDD power and lamp on/off sequence is as follows. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off.
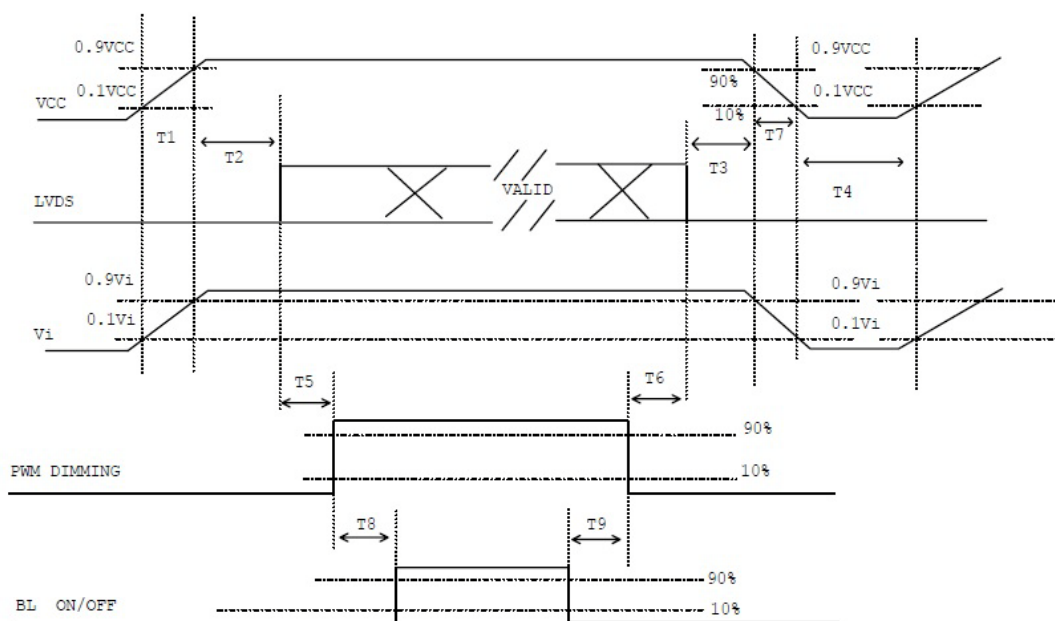
Parameter	Value			Unit
	Min.	Typ.	Max.	
T1	0.5	-	10	[ms]
T2	0	-	50	[ms]
T3	0	-	50	[ms]
T4	500	-	-	[ms]
T5	20	-	-	[ms]
T6	10	-	-	[ms]

T7	5	-	300	[ms]
T8	10	-	-	[ms]
T9	10	-	-	[ms]

The above on/off sequence should be applied to avoid abnormal function in the display. Please make sure to turn off the power when you plug the cable into the input connector or pull the cable out of the connector.

Note 1: *The supply voltage of the external system for the module input should be the same as the definition of VDD*

Note 2: *Apply the lamp voltage within the LCD operation range. When the back-light turns on before the LCD operation or the LCD turns off before the back-light turns off, the display may momentarily become white.*

Note 3: *In case of VDD = off level, please keep the level of input signal on the low or keep a high impedance.*

Note 4: *Interface signal shall not be kept at high impedance when the power is on.*

The above on/off sequence should be applied to avoid abnormal function in the display. Please make sure to turn off the power when you plug the cable into the input connector or pull the cable out of the connector.

Chapter 4

**Display Connector
Definition**

4.1   TFT LCD Signal (CN1): LVDS Connector

Table 4.1: TFT LCD Signal (CN1): LVDS Connector	
Connector Name / Description	**Signal Connector**
Manufacturer	Starconn or compatible
Mating Model Number	076B20-0048RA-G4, Starconn or equivalent

Table 4.2: Pin Assignment			
Pin No.	**Signal Name**	**Pin No.**	**Signal Name**
1	RX3+	2	RX3-
3	NC	4	FRC
5	GND	6	RXC+
7	RXC-	8	GND
9	RX2+	10	RX2-
11	GND	12	RX1+
13	RX1-	14	GND
15	RX0+	16	RX0-
17	LR	18	UD
19	VCC_IN	20	VCC_IN

4.2   LED Backlight Unit (CN2): LED Driver Connector

Connector Name / Designation	LED Connector
Manufacturer	UNE
Mating Model Number	LM123S004HTF13, 4PIN, UNE

Pin #	Symbol	Pin Description
1	Vi	Converter Input Voltage
2	ADJ	Backlight Adjust
3	EN	Enable pin
4	VGND	Converter ground

Chapter 5

Touch Screen

5.1 Touch Characteristics

This touch panel is a resistance type that customers use with flat displays like LCDs. Once an operator touches it, the circuit sends coordinate points to the PC from the voltage at contact points.

5.2 Optical Characteristics

	Item	Specification	Remarks
1	TRANSPARENCY	90% ± 3%	measured by BYK-Gardner
2	HAZE	<2%	measured by BYK-Gardner

5.3 Environmental Characteristics

	Item	Specification	Remarks
1	Operating temperature	-20°C ~ 70°C	When the ambient temperature is above 65oC, the humidity is allowed to be below 50%RH.
2	Storage temperature	-40°C ~ 80°C	
3	Operating Humidity	20% ~ 85%RH	
4	Storage temperature	20% ~ 90%RH	

5.4 Mechanical Characteristics

	Item	Specification	Remarks
1	Hardness of surface	Pencil hardness 7H.	ASTM D3363 Pressure: 750g/45°
2	FPC peeling strength	800g by vertical 90°	for 30 sec
3	Operation force	Finger≤10g, ≥8ψ	Within "guaranteed active area", but not on the age.

5.5 Electronic Characteristics

	Item	Specification	Remarks
1	Response	< 25ms	
2	Accuracy	Line Drawing: 1pt ± 1mm offset /10mm 2pt ± 2mm offset / 10mm touch point: 1pt ± -2.5mm 2pt ± -5.0mm Refer to Windows 7 Logo Regulation	
3	Multi-Touch Fingers Pitch	Between the Finger Pitch > 10mm	Channel Pitch Should be 5mm~7mm

5.6 Mounting Notes

5.6.1 Mounting

- The gasket of the touch panel must be designed for the outside of the viewable area to avoid pressing on the touch panel accidentally and the enclosure must be designed with enough clearance from the panel surface. To avoid pressing errors on the touch panel, please allow space between the surface of the panel and the bezel.
- We recommended elastic type materials.
- The edge of the touch panel is conductive. Don't touch it with metal after mounting.
- Please take notice of grounding while mounting the touch screen, otherwise interference may cause unstable performance.
- Please do not pull on the flex tail during assembly. Do not bend at 90 degrees and each bend angle should be no less than R=5m/m
- During assembly, the touch panel must be securely affixed onto the LCD panel to prevent displacement of the touch panel due to outside force pressing on touch screen or bezel/case.
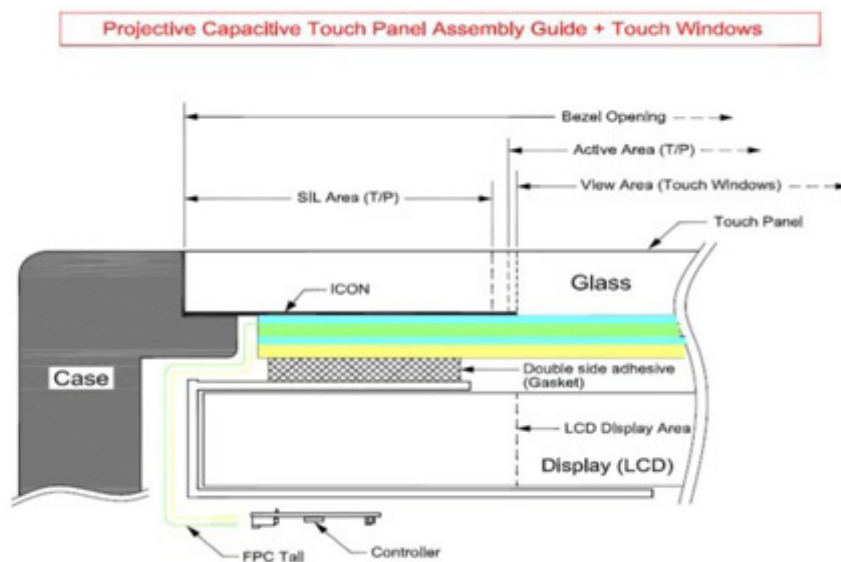
5.6.2 Caution

5.6.2.1 Installing and Assembling

- Do not use excessive force or strain to the panel or tail.
- Gasket or cushion pads around the edge of the panel may segregate water and/or dust contamination.
- Maintain a minimal 5R when bending the tail to prevent dead folds or fold marks.
- Flaws in customer module design may cause functionality issues after assembly.

5.6.3 Operating

- Touch the panel with your finger or stylus only to test normal operation. Any sharp edged or hard objects should not be used.
- Operate the panel in a steady environment. Abrupt variation on temperature and humidity may cause malfunctions to the panel.

- Avoid applying excessive activation force or sudden impact on the panel surface.
- Avoid high voltages and / or static charge.

5.6.3.1 Others
- Keep the panel surface clean. Prevent any kind of adhesive or tape applied onto the touch surface.

Chapter 6

Touch Controller

6.1 Touch Controller Characteristics

EETI EXC3132 is a MCU based projected capacitive touch screen controller designed for commercial and industrial applications. EXC3132 controller supports high voltage driving signal to achieve high SNR and better wideband interference susceptibility.
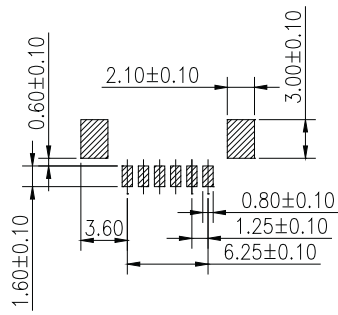
EXC3132 provides different working frequencies to avoid narrow band interference. With high voltage driving and different working frequencies, EXC3132 provides excellent interference susceptibility performance. EXC3132 provides an excellent solution for not only finger operation but also with gloves, thicker glass, etc. applications.

6.2 Specifications

| Table 6.1: Specifications	
Clocks	External 12M HZ crystal Internal PLL
	Internal 32 bits RTC
	Clock generator for digital modules
	Clock generator for analog modules
Power Management	Power supply : 3.3~5.5 VDC
	Internal regulator for analog clock
	Internal regulator for digital core
	Idle mode
	Sleep mode
ESD	4000V(HBM)
Analog Models	Up to 32 RX channels
	Up to 18 TX channels
	Signal generator
Communication Interface	USB 2.0 compliant full speed with LPM L1 supported
	Configurable Serial Interface
	-I2C : up to 400KHZ, support 3.3V
Digital Modules	Timers, Watch dog Timer
	Multi-touch algorithm accelerator
	Hardware scan ending
Operation Temperature	-40 to 85°C
Storage Temperature	-40 to 90°C
Power Consumption (mA)	Active Mode: 35mA
	Idle Mode: 34mA
	Sleep Mode :<33mA
	(Operation Mode: Active Mode only)
Relative Humidity Linearity (Note 1)	95% at 60°C, RH Non-condensing
	Line drawing accuracy: 1pt +/- 1mm offset /10mm
	Line drawing accuracy: 2pt +/- 2mm offset /10mm
	Touch (point) accuracy: 1pt +/- 2.5mm
	Touch (point) accuracy: 2pt +/- 5.0mm
	Refer to Windows 7 Logo regulation

6.3 OS Driver Support

OS	Version	Interfaces
Windows	Windows 7/ 8/10	USB
	Windows Vista, XP/2000, 9x/ME	
	Windows CE 2.12/3.0/.net/5.0/6.0	
	Windows Embedded	
	Windows XP Tablet PC edition	
Linux	Mandrake (Mandrake 9.1/9.2/10, Mandriva 2005, Mandriva 2006), Red Hat (7.3/8.0/9.0), Fedora (Core I/II/III/IV/V/VI), Yellow Dog (3.X) , SuSE (9.2/9.3/10/10.1), Ubuntu (5.1/6.06), Debian (3.1, Kernel 2.4.x/2.6.x)	USB (up to Kernel 2.6.x)
	Android 4.0 – Google Moblin V2/Meego - Intel	USB
Mac	Mac OS9, Mac OS X (IBM, intel CPU)	USB
QNX	QNX RTOS v6.3	USB

6.4 Circuit board dimension

6.5 Interface

DETAIL–A

CONNECTOR PINOUT

PIN NO.	DESIGNATION
1	GND
2	I^2C–SDA
3	I^2C–SCL
4	GND
5	I^2C–INT
6	/RST

0.60±0.10
2.10±0.10
3.00±0.10
1.60±0.10
3.60
0.80±0.10
1.25±0.10
6.25±0.10

CONNECTOR: E & T (3802–E06N–01R)
P.C.B LAYOUT
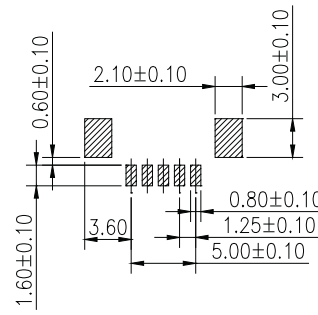
DETAIL–B

CONNECTOR PINOUT

PIN NO.	DESIGNATION
1	GND–EARTH
2	VDD
3	GND
4	D+
5	D–

0.60±0.10
2.10±0.10
3.00±0.10
1.60±0.10
3.60
0.80±0.10
1.25±0.10
5.00±0.10

CONNECTOR: E & T (3802–E05N–01R)
P.C.B LAYOUT

Appendix A

Handling Precautions

A.1 Handling Precautions

The optical characteristics are measured under stable conditions at 25°C (Room Temperature)

1. Since front polarizer is easily damaged, pay attention not to scratch it.
2. Be sure to turn off power supply when inserting or disconnecting from input connector.
3. Wipe off water drops immediately. Long contact with water may cause discoloration or spots.
4. When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
5. Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
6. Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.
7. Do not open or modify the Module Assembly.
8. Do not press the reflector sheet at the back of the module to any directions.
9. In case if a Module has to be put back into the packing container slot after once it was taken out from the container, please press at the far ends of the LED light bar reflector edge softly. Otherwise the TFT Module may be damaged.
10. At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
11. After installation of the TFT Module into an enclosure, do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.
12. A small amount of materials having no flammability grades have been used in the LCD module. The LCD module should be supplied by power complying with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exempt of them.

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