

LCD-Kit07A
VGA Input LCD Kit of
15" TFT Color 1024x768 – 36bits Display

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Contents

1. Introduction.....	2
1.1 Specifications	3
1.2 What You Have	4
2. Installation	5
2.1 LCD-Kit07A Connection Layout.....	6
2.2 Dimension Drawing	7
3. LCD-Kit07A Connectors.....	8
3.1 LCD-07 Connector Board Layout.....	8
3.2 Backlight Connector	11
3.3 Touch Panel Power Connector	12
3.4 LVDS-02 Connection Board.....	12
3.5 AV 6721 Control Board.....	16
4. Appendix.....	16
Unpacking Precautions	

1

Introduction

Welcome to the LCD-Kit07A. The LCD-Kit07A is an Amorphous Silicon TFT LCD panel with VGA input and OSD (On Screen Display) control. It is made for the system manufacturers, integrators, or VARs that want to provide all the performance, quality and reliability.

The LCD-Kit07A is designed with 1024 x 768 resolution and 36-bits display colors, wide view angle, High Contrast and Low Reflection to present a High Image Quality. With its compact size (15.0"), LCD-Kit07A is also the most suitable solution for OA Equipment, Display Terminals, and Industrial portable Workstation LCD monitor.

The LCD-Kit07A comes with specifically designed mounting kit for fast installation. It is also *Plug and Play*, can be directly and easily connected to any VGA port.

1.1 Kit Specifications :

- Single Supply Voltage : +12V
- Outline Dimensions : 364.1mm (W) x 262.5mm (H) x 53.0mm (D)
- Panel Size : 15.0" (38cm) Diagonal
- Active Area : 304.1mm x 228.1mm
- Display Colors : 262k Colors by supplying 36 bit data signal
- Number of Pixels : 1024 (W) x 768 (H)
- Pixel Format : 1 pixel = R + G + B dots
- Pixel Arrangement/Configuration : R,G,B vertical stripe
- Brightness : 200 cd/m²
- Pixel Pitch : 0.297mm (H) x 0.297mm (V)
- Viewing Angle : Vertical = 120°, Horizontal = 140°
- Contrast Ratio : 250 -> 300
- Surface Treatment : Anti-glare and Hard Coat 2H
- Backlight: edge-lighting type with couple of Cold-Cathode Fluorescent Tube (CCFT)
- Operating Temperature : 0~50°C
- LCD MTBF : 50,000 hours
- Backlight MTBF : 50,000 hours (avr.)
- VGA Input
- OSD built
- RS232 I/F Touch panel (option)

1.2 What You Have

In addition to this *User's Manual*, the LCD-Kit07A package includes the following items:

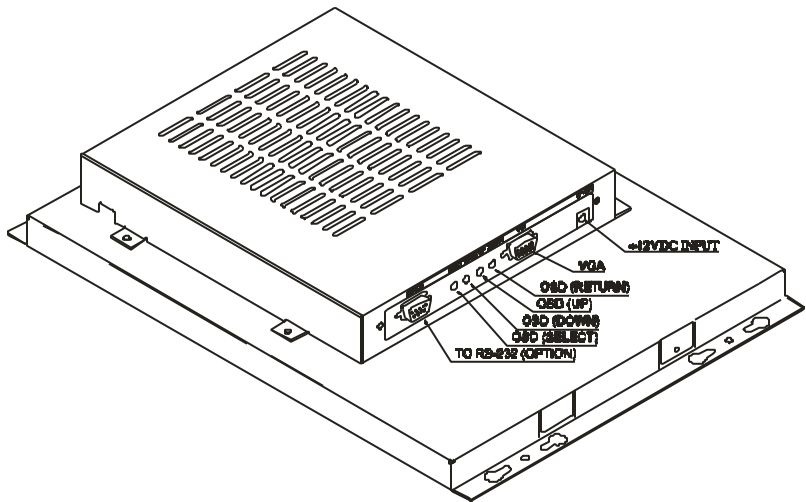
- 6721 User's Manual
- LCD-Kit07A User's Manual
- Power adapter
- AC power cord
- VGA cable (1.8M)

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

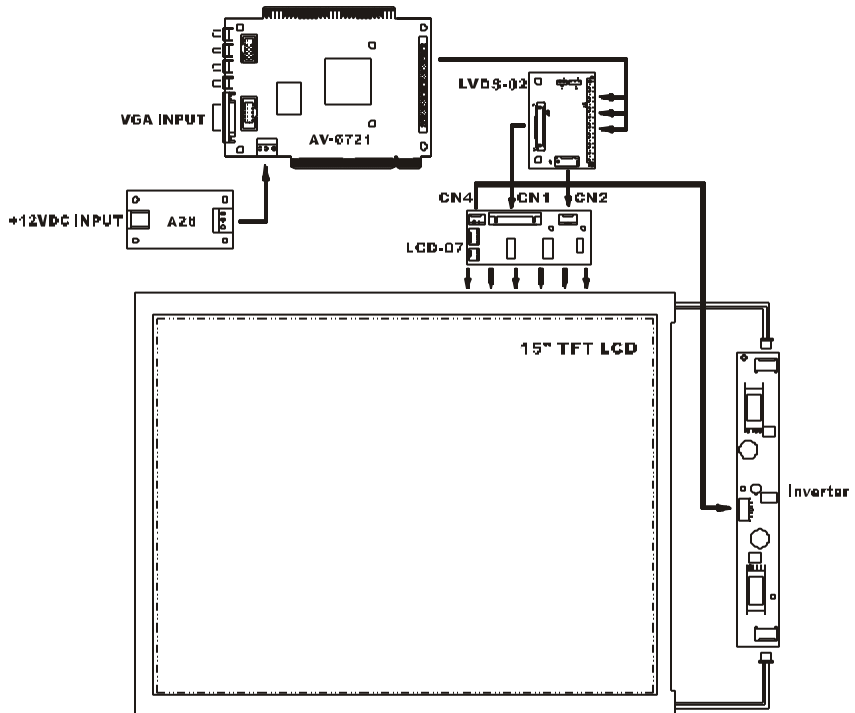
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Installation

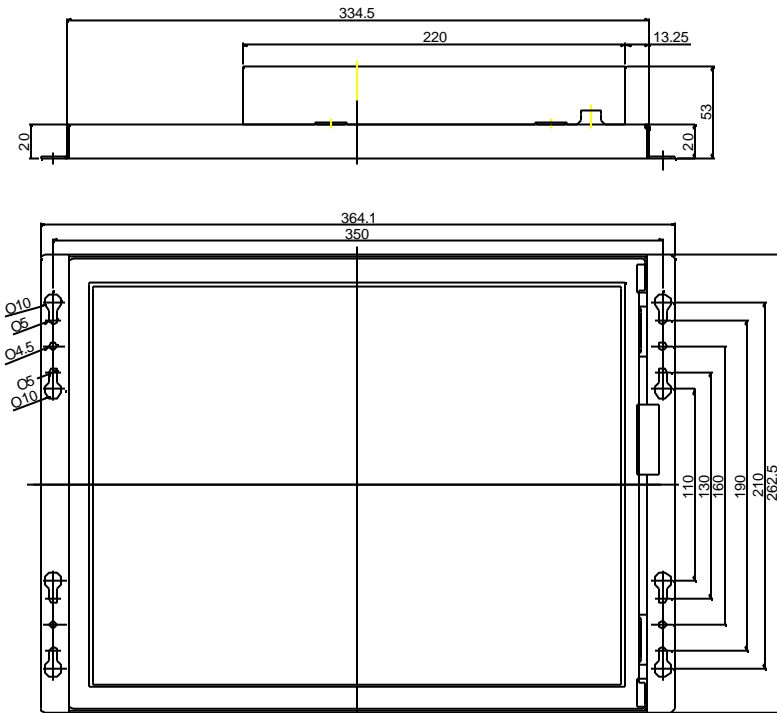
This chapter describes how to install LCD-Kit07A and include all connectors description. The layout of LCD-Kit07A connectors are shown on the next chapter. The reference manual of AV-6721 control board are separated on attached booklet. And the Unpacking Precautions are show on appendix that you should be careful with are described on the following page.



2.1 LCD-Kit07A Connection Layout



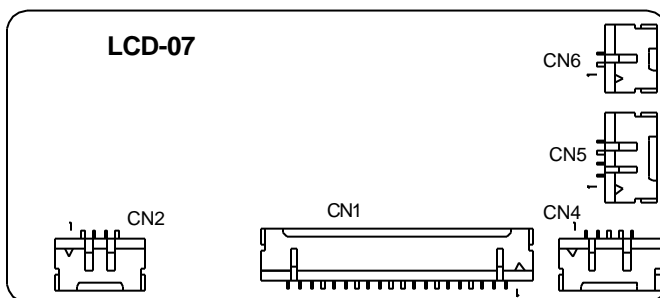
2.2 LCD-Kit07A Dimension Drawing



3

LCD-Kit07A Connectors

3.1 LCD-07 Connection Board Layout



LCD-07 Connector

- **CN1: LVDS Connector**

(connected to LVDS02 Control Card of SBC)

PIN NO	FUNCTION
1	+5V
2	+5V
3	GND
4	GND
5	RA0-
6	RA0+
7	RB0-
8	RB0+
9	RC0-
10	RC0+
11	RCLK0-
12	RCLK0+
13	RA1-
14	RA1+
15	RB1-
16	RB1+
17	RC1-
18	RC1+
19	RCLK1-
20	RCLK1+

• **CN3: LCD OUTPUT Connector**

(connect to Panel Display, at the back side of the PCB)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	RB0
3	RB1	4	RB2
5	RB3	6	RB4
7	RB5	8	GND
9	GB0	10	GB1
11	GB2	12	GB3
13	GB4	14	GB5
15	GND	16	BB0
17	BB1	18	BB2
19	BB3	20	BB4
21	BB5	22	GND
23	RA0	24	RA1
25	RA2	26	RA3
27	RA4	28	RA5
29	GND	30	GA0
31	GA1	32	GA2
33	GA3	34	GA4
35	GA5	36	GND
37	BA0	38	BA1
39	BA2	40	BA3
41	BA4	42	BA5
43	GND	44	GND
45	GND	46	FLM(VSYNC)
47	LP(HSYNC)	48	M(DE)
49	GND	50	GND
51	SHFCLKA	52	SHFCLKB
53	GND	54	GND
55	GND	56	GND
57	+5V	58	+5V
59	+5V	60	+5V

3.2 Backlight Connector

- **CN2: Backlight Inverter Input Connector**
(connect to LVDS control card)

PIN NO.	DESCRIPTION
1	+12V
2	+12V
3	GND
4	ENBKL

- **CN4: Backlight Inverter Connector** (connect to Inverter)

PIN NO.	DESCRIPTION
1	Vin(+12V)
2	ON/OFF
3	GND
4	VR
5	Potential GND

Note:

Pin5 is serially connected with R4 to GND
(reserved for potentiometer GND)

- **CN5: Backlight Switch and Brightness VR Connector**

PIN NO.	FUNCTION	DESCRIPTION
1	SW	ENBKL
2		To CN4 Pin2
3	BR	VR or Vadj
4		Potential GND

Note:

Pin4 is serially connected with R4 to GND

1-2 ON : BKI operated

1-2 OFF : BKI inoperated

3-4 If the inverter uses the Ohm (Ω) value to adjust the brightness value, then the R4 is stamped with 0 Ω . Otherwise, R4 is stamped with a preferred value for voltage controlled adjustment.

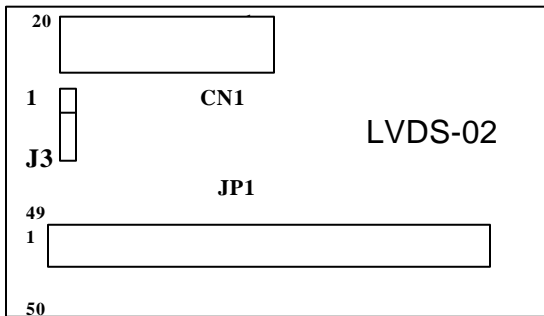
3.3 Touch Panel Power Connector

• **CN6: Touch Panel Power Connector**

PIN NO.	DESCRIPTION
1	+12V
2	GND

3.4 LVDS-02 Connection Board

PLCD: Power supply from CPU board which can be configured as +5V or +3V supply. Please refer to the CPU board manual



1.Connector description

J3: Power Connector for backlight inverter

1	1	NC
	2	GND

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5

2. Signal description

a. LVDS interface : 36bit Color TFT

Example of Samsung TFT LCD LT140X1-101

NEC NL 10276AC28-05

P12(FG0)	TX10+ TX10-	P18(SG0)	TX20+ TX20-
P24(FR0)		P30(SR0)	
P25(FR1)		P31(SR1)	
P26(FR2)		P32(SR2)	
P27(FR3)		P33(SR3)	
P28(FR4)		P34(SR4)	
P29(FR5)		P35(SR5)	
P0(FB0)	TX11+ TX11-	P6(SB0)	TX21+ TX21-
P1(FB1)		P7(SB1)	
P13(FG1)		P19(SG1)	
P14(FG2)		P20(SG2)	
P15(FG3)		P21(SG3)	
P16(FG4)		P22(SG4)	
P17(FG5)		P23(SG5)	
P2(FB2)	TX12+ TX12-	P8(SB2)	TX22+ TX22-
P3(FB3)		P9(SB3)	
P4(FB4)		P10(SB4)	
P5(FB5)		P11(SB5)	
LP			
FLM			
M			

SHFCLK	TX1CLK+ TX1CLK-	SHFCLK	TX2CLK+ TX2CLK-
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b. Reference

JP1: Panel signal from CPU board (reference)

		<u>Signal Name</u>	Pin #	Pin #	Signal Name
1	2	VPCLK	1	2	P33
		P34	3	4	P31
		P35	5	6	P32
		P30	7	8	P28
		P29	9	10	P27
		P25	11	12	P26
		P24	13	14	P21
		P23	15	16	P22
		P16	17	18	P20
		P17	19	20	P18
		P19	21	22	P14
		P13	23	24	P12
		P15	25	26	P11
		P7	27	28	P10
		PLCD	29	30	PLCD
		P9	31	32	P8
		P4	33	34	P6
P3	35	36	P5		

49 50

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P2	37	38	P1
M	39	40	P0
SHFCLK	41	42	ENABKL
FPVDD	43	44	FLM
FPVEE	45	46	LP
GND	47	48	GND
+12V	49	50	+12V

SHFCLK: Shift Clock. Pixel clock for flat panel data.

FLM:First Line Marker.Flat Panel equivalent of VSYNC.

LP:Latch Pulse(may also be called CL1).

M:M signal for panel AC drive control (may also be calledACDCLK).

3.5 AV-6721 Control Board

The AV-6721 Control Board is worked for VGA control; all detail as feature and connection information please refer to “AV-6721 User Manual”.

Appendix

Unpacking Precautions

- ✓ Some components on LCD-Kit07A are very sensitive to static electric charges and can be damaged by a sudden rush of power. Ground yourself to remove any static charge before touching your LCD-Kit07A. You can do it by using a grounded wrist strap at all times or by frequently touching any conducting materials that is connected to the ground.
- ✓ Do not touch the inner side of LCD panel and the connector/cable of fluorescent lamp/backlight when the power is on. The inverter supplies HIGH VOLTAGE to these parts (~ 690Vrms).
- ✓ Disconnect power supply before handling and doing connection on LCD-Kit07A. Do not plug any connector or jumper while the power is on. It will cause fatal damage to your LCD panel.
- ✓ Make sure that every connector is connected in correct direction.

Any incorrect connection may cause smoke or burn of electrical parts or fatal damage of your LCD panel.

- ✓ Be careful with the liquid crystal material. Do not swallow, inhale or have skin contact with this material in case that the LCD panel is broken and the liquid flow out. If you inhale the liquid material, rinse your mouth immediately with water then go to see a doctor. If you have skin contact with the liquid, wash it immediately with alcohol. Be careful, too, with the chips of glass if the panel is broken.
- ✓ For outdoor usage, an ultra-violet ray protect-lens is recommended to apply onto LCD display. It will prevent your LCD from strong sunlight, scratches, dust and water invasion etc. which can cause damage to the LCD display.