

Digital Panel Driving Board

CUSTOMER:

MODEL NO.: TMS_-9083-XXXX

PART NO.:

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Approval by :	Review by :	Design by :
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Rev. Record

Rev No	Date	Description	Note
0.1	2008.08.03	Initial reversion	
0.2	2009.05.10		
0.3	2009.06.25		
0.4	2011.01.20		

GENERAL:

TMS-9083-XXXX is high performance small and middle sized panel driving board, which can directly support PC VGA input and Video input . The board for PC VGA input can allow from 640x480@60Hz to 1024x768@75 Hz input; and the Video Input can allow the NTSC/PAL/SECAM video for Composite or Svideo input.

For the panel display output ,This board can support small sized panel from the resolution 320x240 to 1280x768 panel with CMOS-TTL / TTL-TCON/LVD interface.

The output resolution and interface can be decided by internal firmware setting and Optional.

Features:

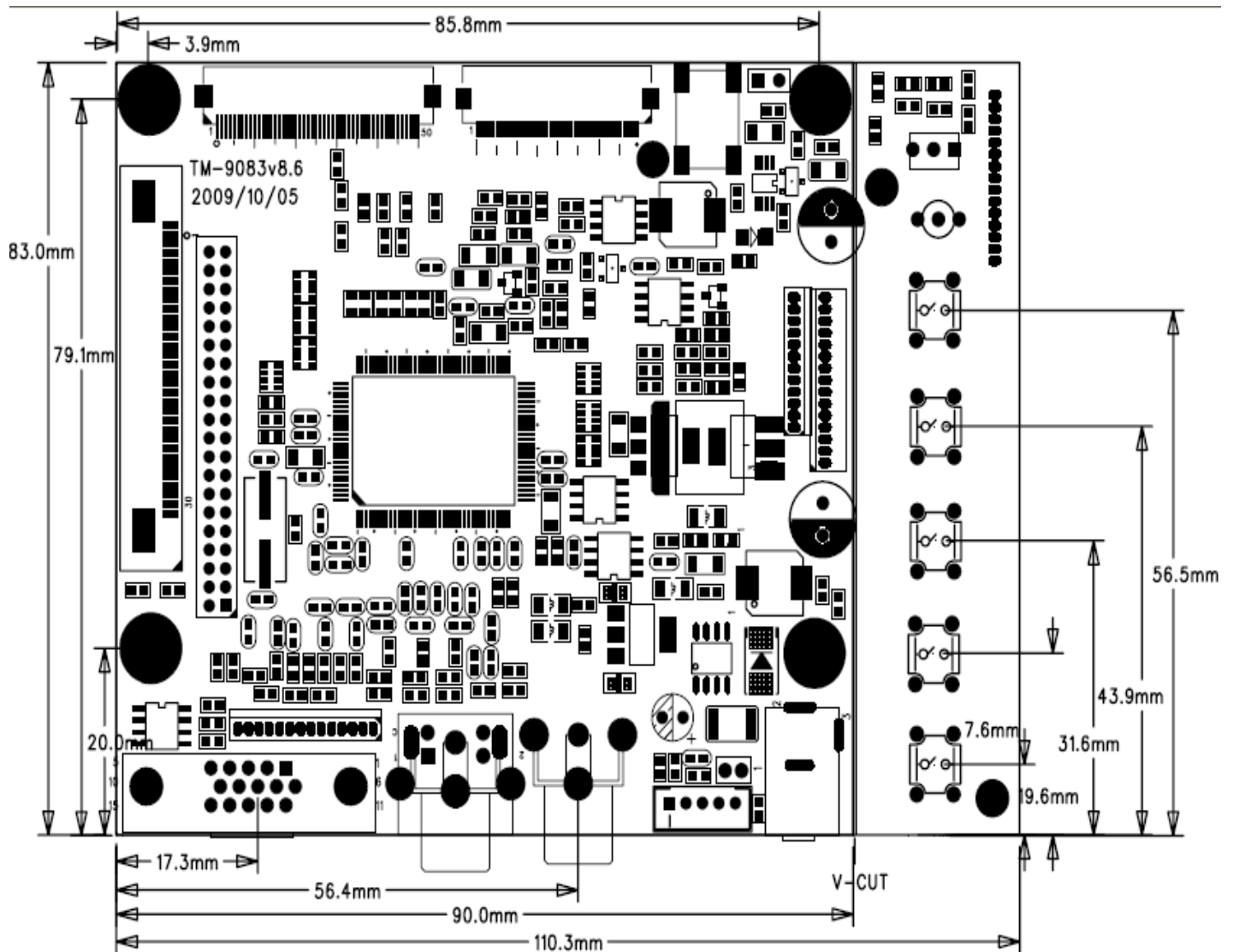
- Support QVGA,VGA,SVGA,XGA,WXGA resolution TFT LCD panel
- Support CMOS-TTL/TTL_TCON/LVDS panel interface TFT LCD panel
- Support Standard VESA PC VGA Input Mode
- Support Standard Video Input for NTSC/PAL/SECAM
- Auto-adjustment function for PC input
- Build in Normal brightness LED driver (LED 10.2V max. 200mA / LED 13.2V max.150mA)
- Build in High brightness LED driver for Optional Model (10.2V Max 800mA)
- Compact and small size

BOARD DIMMENSION:

Main board: 90 mm x 83 mm

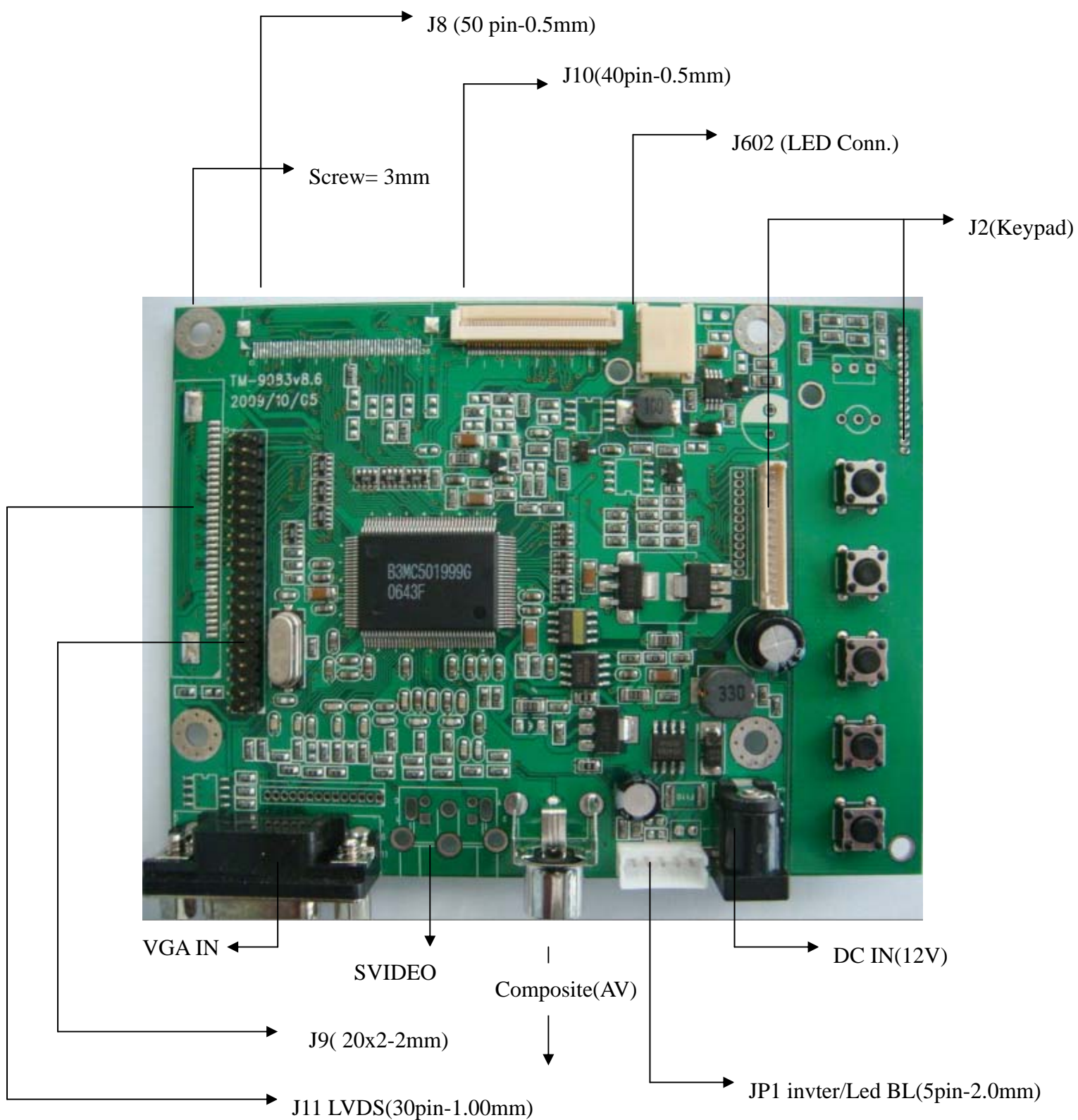
Key Board : 20.2mm x 83 mm

Tolerance=0.2mm



Main Board and Keypad Board

Board Photo picture:



VGA Support Timing Table

MODE	Resolution	H. Freq.(K Hz)	V. Freq(Hz)	NOTE
1	640X350@70	31.469	70.087	A
2	640X400@70	31.469	70.087	A
3	640X480@60	31.469	59.940	
4	640X480@72	37.861	72.809	
5	640X480@75	37.500	75.000	
6	720X400@70	31.469	70.087	
7	800X600@56	35.156	56.250	
8	800X600@60	37.879	60.317	
10	800X600@72	48.077	72.188	
11	800X600@75	46.875	75.000	
12	1024X768@60	48.019	60.000	B
13	1024X768@70	74.882	69.853	B
14	1024X768@75	79.976	75.025	B
15				

NOTE

A: if the Panel resolution is less than 480X272, Only support Video Input.

VIDEO SUPPORT MODE :

MODE	Video Mode	H. Freq.(K Hz)	V. Freq(Hz)	Color Carrier
1	NTSC	15.734	60	3.579Mhz
2	PAL	15.625	50	4.436Mhz
3	SECAM	31.469	50	NC

Connector Description:

REFERENCE	FUNCTION	CONN.	NOTE
P1	DC 12V INPUT	DC JACK	
CON1	DC 12V INPUT	2 Pin, Pitch=2.0mm	
JP1	INVERTER/ external LED Conn.	5 Pin, Pitch=2.0mm	
J2	KEYPAD Conn.	15 Pin, Pitch=1.25mm	
J602	Internal LED Conn.		
CN1	VGA DUB 15 Conn.	Dsub 15 PIN	
J6	Composite AV Input		
J5	SVIDEO Input		
J4	RESERV		
J8	PANEL (A)-TTL 8 bit	50 pin, Pitch=0.5mm	
J10	PANEL (B)-TTL 6bit	40 Pin, Pitch=0.5mm	
J11	PANEL(D)- LVDS 30Pin	30 Pin, Pitch=1.0 mm	

J9	USER PANEL I/O	20X2 Pin, Pitch=2.00mm	
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CONNECTOR PIN DEFINITION TABLE:

- P1: 2Pin ,DC 12V Input

PIN	PIN Definition	Note
Inner Positive	12V DC Input	
GND	GND	

- JP1: 5 Pin , External INVERTER/LED Connector

PIN	PIN Definition	Note
1	12V	
2	GND	
3	NC	
4	NC	
5	Backlight enable	

- J2 : 15 Pin , Keypad Connector

PIN	PIN Definition	Note
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1	GND	
2	NC	
3	NC	
4	LED_RED	
5	LED_GREEN	
6	VCC 3.3V	
7	GND	
8	IR	
9	SW 0	
10	SW 1	
11	SW 2	
12	SW 3	
13	SW 4	
14	SW 5	
15	SW 6	

- J602, Internal LED Connector.

PIN	PIN Definition	Note
1	LED +	
2	LED -	

- CN1 : VGA Input D-sub 15 Pin Connector

PIN	PIN Definition	Note
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1	RED	
2	GREEN	
3	BLUE	
4	GND	
5	GND	
6	GND	
7	GND	
8	GND	
9	NC	
10	GND	
11	NC	
12	SDA	
13	Hsync	
14	Vsync	
15	SCL	

- J6: 2 Pin Composite AV Input

PIN	PIN Definition	Note
1	VIDEO IN	
2	GND	

- J5 : SVIDEO Input

PIN	PIN Definition	Note
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1	GND	
2	GND	
3	C	
4	Y	

- J8 : 8 Bit Panel Output-TTL, 50 Pin , Pitch=0.5mm

PIN	PIN Definition	Note
1	GND	
2	GND	
3	VCC 3.3V	
4	VCC 3.3V	
5	R0	
6	R1	
7	R2	
8	R3	
9	R4	
10	R5	
11	R6	
12	R7	
13	G0	
14	G1	
15	G2	
16	G3	
17	G4	
18	G5	
19	G6	
20	G7	
21	B0	
22	B1	
23	B2	
24	B3	
25	B4	
26	B5	

27	B6	
28	B7	
29	GND	
30	CLOCK	
31	DISP ON	High : On, Low: Off
32	Hsync	
33	Vsync	
34	Data Enable	
35	U/D	
36	NC	
37	GND	
38	GND	
39	NC	
40	NC	
41	NC	
42	NC	
43	GND	
44	GND	
45	GND	
46	VLED-	
47	VLED+	
48	GND	
49	GND	
50	GND	

- J10: 6 Bit Panel Output , 40 PIN, Pitch=0.5mm

Pin	Pin Definition	Note
1	NC	
2	NC	
3	Hsync	
4	VLED	
5	VLED	
6	VLED	
7	VCC 3.3	
8	Vsync	
9	Data enable	

10	GND	
11	GND	
12	GND (ADJ)	
13	B5	
14	B4	
15	B3	
16	GND	
17	B2	
18	B1	
19	B0	
20	GND	
21	G5	
22	G4	
23	G3	
24	GND	
25	G2	
26	G1	
27	G0	
28	GND	
29	R5	
30	R4	
31	R3	
32	GND	
33	R2	
34	R1	
35	R0	
36	GND	
37	GND	
38	CLOCK	
39	GND	
40	GND	

- J7 : LCD Panel 6 bit LVDS , 20 Pin , Pitch=1.25mm

PIN No	Pin Definition	Note
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1	VCC 3.3	
2	VCC 3.3	
3	LED_CTRL	
4	GND	
5	RX0-	
6	RX0+	
7	GND	
8	RX1-	
9	RX1+	
10	GND	
11	RX2-	
12	RX2-	
13	GND	
14	RXCK-	
15	RXCK+	
16	GND	
17	NC	
18	NC	
19	LED_VCC	
20	LED_VCC	

- J11 (Top side): LCD Panel Output 6 Bit/8 bit LVDS, 30 Pin ,Pitch=1.00mm

Pin No	Pin Definition	Note
1	GND	
2	VCC 3.3	
3	VCC 3.3	
4	NC	
5		
6	NC	
7	NC	
8	RX0-	
9	RX0+	
10	GND	
11	RX1-	
12	RX1+	

13	GND	
14	RX2-	
15	RX2+	
16	GND	
17	RXCK-	
18	RXCK+	
19	GND	
20	NC	
21	NC	
22	GND	
23		
24	LED_VCC(5V)	
25	LED_VCC(5V)	
26	LED_VCC(5V)	
27		
28	GND	
29		
30		

- J9 : USER PANEL I/O , 40Pin(20x2), Pitch=2mm

Pin No	Pin Def.	LVDS mode	Pin No.	Pin Def.	LVDS mode
1	5V		2	GND	
3	Data enable		4	Vsync	
5	Hsync		6	GND	
7	R0		8	R1	
9	R2		10	R3	
11	R4		12	R5	
13	R6		14	R7	
15	G0	RX1+	16	G1	RX1-
17	G2	RX0+	18	G3	RX0-
19	G4		20	G5	
21	G6		22	G7	
23	B0		24	B1	

25	B2	RXCK+	26	B3	RXCK-
27	B4	RX2+	28	B5	RX2-
29	B6		30	B7	
31	SPI_CS		32	Clock	
33	VLED-		34	GND	
35			36	Vcc3V	
37	SPI_DAT		38	VLED+	
39	SPI_CLK		40	12V	

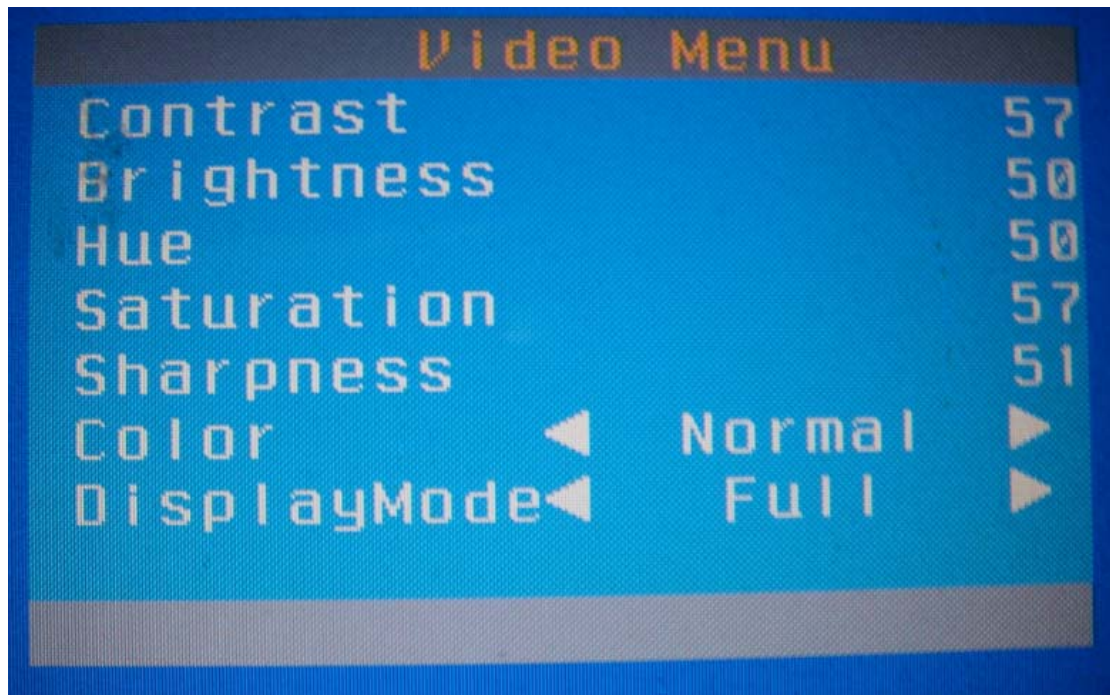
OPERATION CONDITION

- 1.) Operating Temperature : -20°C ~ +75°C
- 2.) Storage Temperature : -20~85°C
- 3.) Operating Relative Humidity : 90% MAX.R.H.
- 4.) Storage Relative Humidity : 90% MAX.R.H.

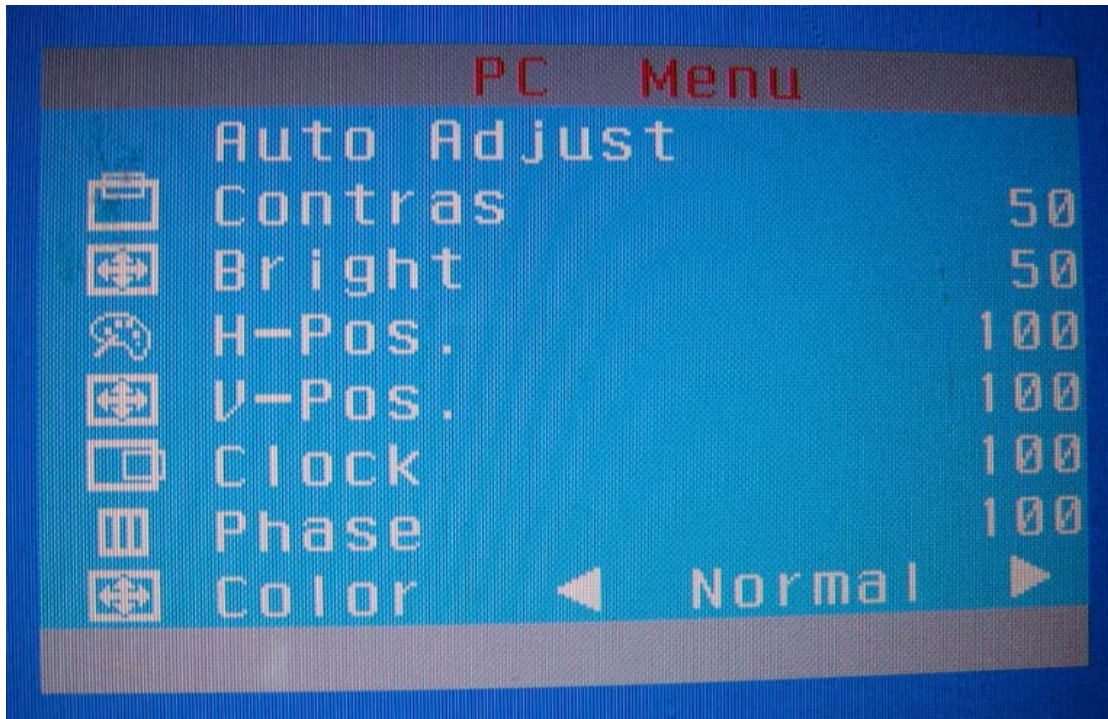
ENVIRONMENT

Operating Temperature	-20 TO 75°C
Operating Humidity	90% MAX. R.H.
Storage Temperature	-20 TO 85°C
Storage Humidity	90% MAX. R.H.

VIDEO OSD MENU:



PC OSD MENU:



OSD KEY OPERATION:

OSD Key	Operation	
Power Key	Power On/Off	
Source Key	Switch AV/PC source	
Menu Key	OSD Menu activate	
Up Key	OSD cursor Up	
Down Key	OSD Cursor Down	

TROUBLE SHOOTING:

APPENDIX: