Features

LCD Panel

- Max. resolution: 1366x768
- 16 CCFTs Backlight system
- Display area: 32 inches(813.3mm) diagonal
- Display color: 16.7 M colors
- Input Signal: 1-ch LVDS
- Contrast ratio:500:1(Typical)
- Brightness: 500 Cd/m^2 (Typical)
- Response Time(Tr+Tf):16 ms
- Viewing angle: 85^o(L)/85^o(R),85^o(U)/85^o(D)

IO functions

- RCA Jack for YPbpr, YCbCr, Video and Audio
- 4-pin S-Din for S-Video
- 15-pin D-Sub for VGA
- 24-pin DVI/HDCP for DVi-D
- F type terminal for TV/CATV input
- 3.5mm earphone jack for Audio Line input
- 3.5 mm earphone jack for Audio Line output
- 3.5 earphone jack for Earphone output

Video Functions

- Support NTSC/PAL/SECAM video format
- SUpport 480i/576i, 480p/576p, 1080i and 720p format
- Build in CLosed Caption and V-Chip functions
- Build in motion adaptive 3D Digital Comb-filter
- Build in Dynamic adaptive smoothing filter
- Build in Dynamic temporal frame-filtering Noise Reduction
- Build in Dynamic motion and edge adaptive De-interlacing
- Film mode 3:2 &2:2 pull down
- Screen display model 16:9/4:3/PANORAMA/ZOOM/PIP/POP

Mechanical

- Swivel: 40^o(R:20^o,L:20^o)
- VESA mounting holes

Multi-Sound System

- MTS(NTSC), FM-FM

Power Source

- Input Voltage: 90~264V, 47~63Hz
- Input Current: 2.3A
- Power Consumption 210Watts
- Stand-by: 5 Watts Max.

Remote Controllers

- Multi-function remote controller

Speaker

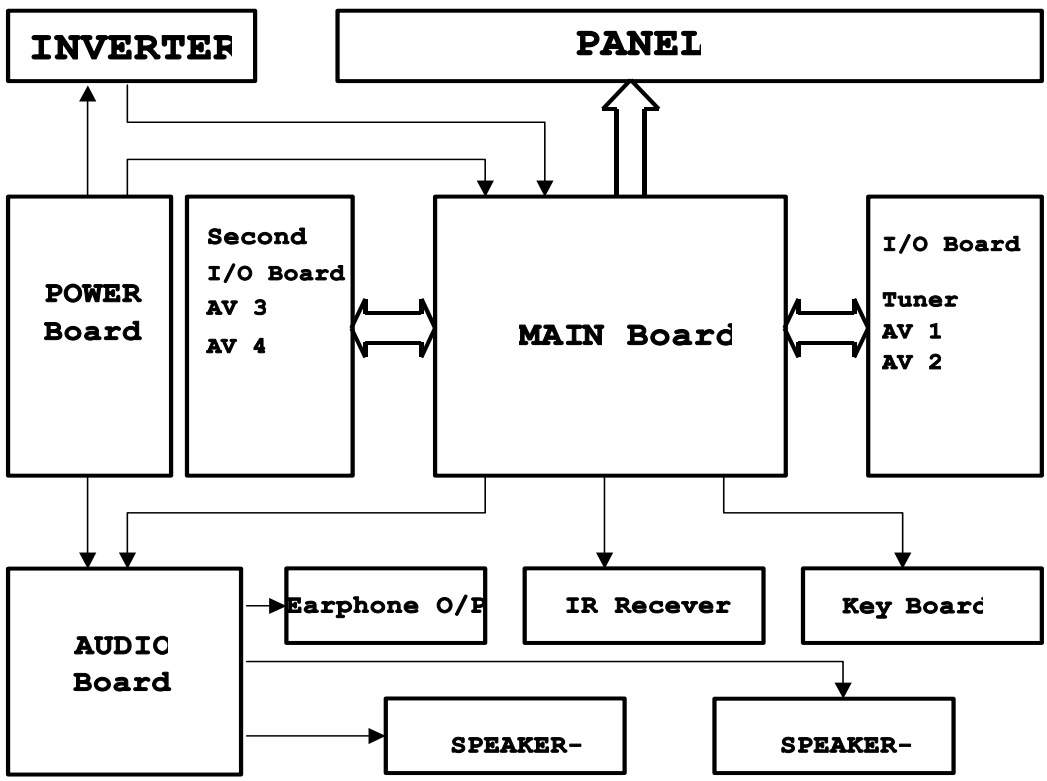
- Internal Speaker: 10W x 2 stereo, volume adjustable

Others

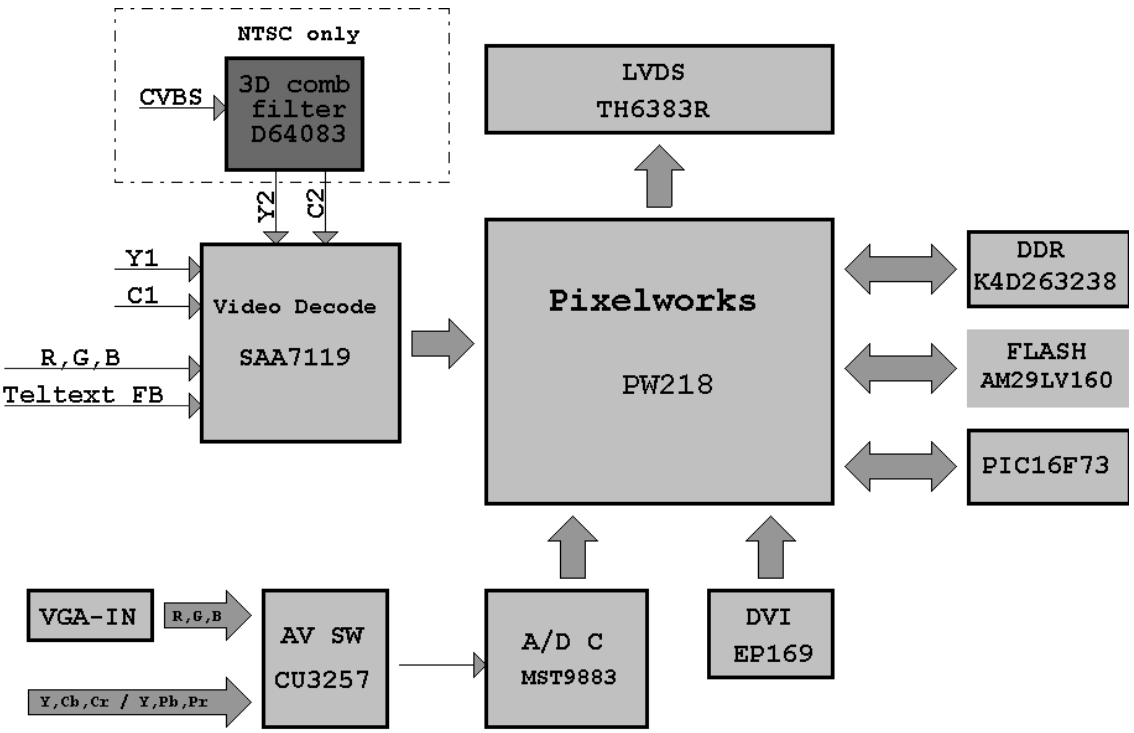
- On screen display adjustment function
- ISP(In System Programming) function available for revising driver easily

Block Diagram

System Block&Writing Diagram

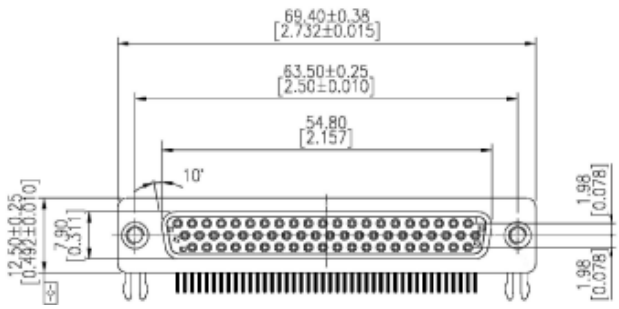


LCD Main Board Block Diagram



Main Board Block Diagram

Pin Definition Between Main Board and I/O Board



No.	Signal Name	Function
1	Teletext_RGB_B (6)	‘ Blue ’ signal comes from Teletext decoder IC.
2	Teletext_RGB_G (6)	‘ Green ’ signal comes from Teletext decoder IC.
3	Teletext_RGB_R (6)	‘ Red ’ signal comes from Teletext decoder IC.
4	Teletext_fast_blanking	Fast blanking signal for the use of Teletext decoder IC on I/O module.
5	Teletext_start	Main board issues it for the use of Teletext decoder IC on the I/O module.
6	SCART_aspect_ratio_1	Aspect ratio indictor signal comes from pin-16 of ordinary SCART connector.
7	DAC_RST (1)	Main board used this pin to reset I^2C DAC on current I/O module.
8	TX_232	‘ TX ’ signal of UART
9	SVHS_2_C (3)	‘ Chrominance ’ signal of SVHS-2
10	SVHS_1_Return (3)	Return path paired with Y and C of SVHS-1
11	SVHS_1_Y (3)	‘ Y ’ of SVHS signal set 1.
12	CVBS_1_Signal (2)	CVBS-1
13	GND_1_of_(3)	Power ground
14	Audio_Center_Gnd_gnd (2)	‘ Ground ’ path paired with audio ‘ Center ’
15	Earphone_for_subpicture_L (2)	Audio ‘ Left ’ channel paired with sub-picture.
16	Audio_Woofer_Gnd_woofer (2)	Audio woofer signal. After decoding Dolby digital or other surround audio, digital receiver sends this woofer signal to LCDTV main board for further processing.
17	Audio_Rear_L_R_Gnd_of_R (3)	‘ Right ’ signal of audio rear channels.
18	YUV_1_Pr (6)	‘ Pr ’ of YUV signal set 1.
19	YUV_1_Pb (6)	‘ Pb ’ of YUV signal set 1.
20	YUV_1_Y (6)	‘ Y ’ of YUV signal set 1.
21	Audio_Front_L_R_Gnd_of_R (3)	‘ Right ’ channel of surround audio. After decoding Dolby digital or other surround audio, digital receiver sends this signal to LCDTV main board for further processing.
22	Teletext_Vs (3, from main board)	Vertical Sync. Signal issued by LCDTV main board for use of Teletext decoder IC on the I/O module.
23	Teletext_RGB_B_Return (6)	‘ Blue ’ signal return for Teletext decoder IC.
24	Teletext_RGB_G_Return (6)	Return path paired with ‘ Green ’ signal comes from Teletext decoder IC.
25	Teletext_RGB_R_Return (6)	Return path of ‘ Red ’ signal comes from Teletext decoder IC.
26	GND_2_of_(3)	Power ground
27	SCART_mode_det_1	SCART mode detection (RGB or CVBS)
28	RESET_I_O_Module	LCDTV main board uses this pin to reset all components inside the I/O module.

29	RX_232	‘ RX ’ signal of UART
30	SVHS_2_Return (3)	Return path paired with Y and C of SVHS-2
31	SVHS_2_Y (3)	‘ Y ’ of SVHS signal set 2.
32	SVHS_1_C (3)	‘ Chrominance ’ signal of SVHS-1.
33	CVBS_1_Return (2)	Return path for CVBS-1
34	CVBS_2_Signal (1)	CVBS-2
35	Audio_Center_Gnd_signal (2)	‘ Center ’ signal of surround audio channels. After decoding Dolby digital or other surround audio, digital receiver sends this signal to LCDTV main board for further processing.
36	Earphone_for_subpicture_R (2)	Audio ‘ Right ’ channel paired with sub-picture.
37	Audio_Woofer_Gnd_gnd (2)	Ground signal paired with audio ‘ Woofer ’ channel.
38	Audio_Rear_L_R_Gnd_of_gnd (3)	Ground signal of rear left and right audio channels. After decoding Dolby digital or other surround audio, digital receiver sends this signal to LCDTV main board for further processing.
39	YUV_1_Pr_Return (6)	Return path of ‘ Pr ’ signal. It belongs to YUV signal set –1.
40	YUV_1_Pb_Return (6)	Return path of ‘ Pb ’ signal. It belongs to YUV signal set –1.
41	YUV_1_Y_Return (6)	Return path of ‘ Y ’ signal. It belongs to YUV signal set –1.
42	Audio_Front_L_R_Gnd_of_Gnd (3)	‘ Ground ’ path paired with audio front “ Left ” and “ Right ”
43	Teletext_Hs (3, from main board)	Horizontal Sync signal. LCDTV main board issues it for the use of Teletext decoder IC on the I/O module.
44	Teletext_Hs_Vs_return (3)	Common return path of horizontal and vertical sync signals which are issued by LCDTV main board
45	TV_Out	Video output for signal set AV3_OUT
46	TV_R	Audio ‘ Right ’ channel of signal set AV3_OUT
47	TV_L	Audio ‘ Left ’ channel of signal set AV3_OUT
48	Audio_Mute	Disable all the analog audio signals from I/O modules
49	12V_max_1A_a (2)	Power pins which supply +12V to digital receiver.
50	12V_max_1A_b (2)	Power pins which supply +12V to digital receiver.
51	5V_max_1.5A_a (2)	Power pins which supply +5V to digital receiver.
52	5V_max_1.5A_b (2)	Power pins which supply +5V to digital receiver.
53	USDA	SDA signal issued by LCDTV main board to access ICs and modules of analog option
54	USCL	SCL signal issued by LCDTV main board to access ICs and modules of analog option
55	ID_1	Identification signal -1
56	ID_2	Identification signal -2
57	GND_3_of_(3)	Power ground
58	Audio_Rear_L_R_Gnd_of_L (3)	Audio ‘ Left ’ channel paired with sub-picture.
59	YUV_2_Pr (3)	‘ Pr ’ signal of YUV-2 signal set.
60	YUV_2_Pb (3)	‘ Pb ’ signal of YUV-2 signal set.
61	YUV_2_Y (3)	‘ Y ’ signal of YUV-2 signal set.
62	Audio_Front_L_R_Gnd_of_L (3)	‘ Left ’ signal of audio rear channels.

LCD Panel Characteristics

General Description

This LCD TV adopts QDI display modules which are color active matrix thin film transistor(TFT) liquid crystal display(LCD) that uses amorphous silicon TFT as a switching device. THis model is composed of a TFT LCD panel, a driving circuit and a backlight system.

THis TFT LCD has a 32 inch diagonally measured active display area with WXGA resolution

General Information

Item	Specification	Unit
Outline Dimension	750 x 447	mm
Display area	32 inches(813.3mm) Diagonal	inch
Number of pixel	1366(H) x 768(V)	pixel
Pixel pitch	0.5175(H) x 0.5175(V)	mm
Pixel arrangment	R,G,B Vertical stripe	
Display color	16.7 M colors	
Display mode	Normally Black	
Surface treatment	Anti-glare and Hard-Coating(3H)	
Weight	Max.(TBD)	Kg
Back-light	16 CCFTs	
Input signal	1-ch LVDS	
Power consumption	110.4(Typical)	W
Optimum viewing direction	6 o'clock	

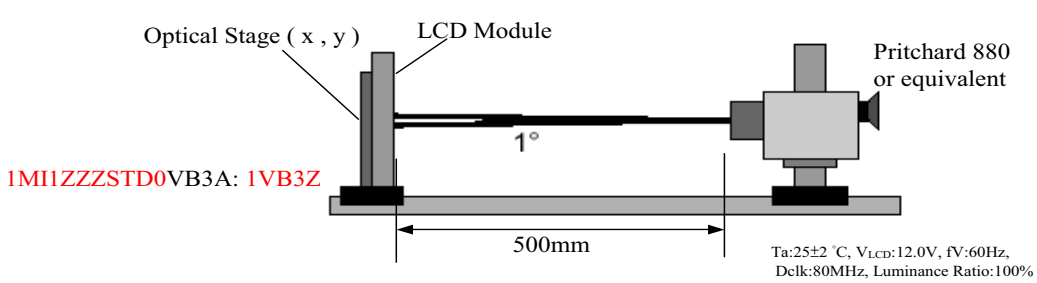
Optical Characteristics

Optical characteristics are determined after the unit has been 'ON' and stable for arround 2 Hrs in a dark environment at 25°C. THe values specified are at an approximate distance 50 cm from the LCD surface at a veiwing angle of F and q equal to 0°

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angle range	L/R	θ 21, θ 22	CR>10		85		Deg.	[Note 4,6]
	U	θ 11			85		Deg.	
	D	θ 12			85		Deg.	
Contrast ratio		CRn	θ =0°		500	—		[Note 2,4]
Response time		τ		—	16		ms	[Note 4,5]
Rise time	τ r						ms	
Fall time	τ d						ms	
Gray to gray					16		ms	
Chromaticity of White (CIE 1931)		Wx			0.285			[Note 4]
		Wy			0.294			
Chromaticity of Red (CIE 1931)		Rx						
		Ry						
Chromaticity of Green (CIE 1931)		Gx						
		Gy						
Chromaticity of Blue (CIE 1931)		Bx						
		By						
Luminance of white		Y_L			500		Cd/m^2	[Note 4]
White Uniformity		$\delta_{W(5P)}$		—	—	1.25		[Note 3]

NOTE:

Optical Characteristic Measurement Equipment and Method



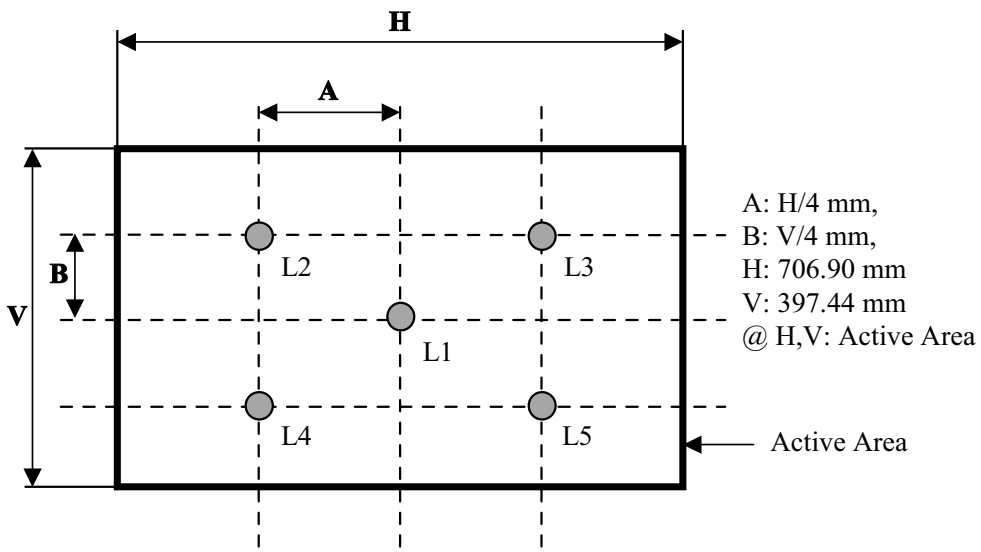
NOTE:

Contrast Ratio(CR) is defined mathematically as:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

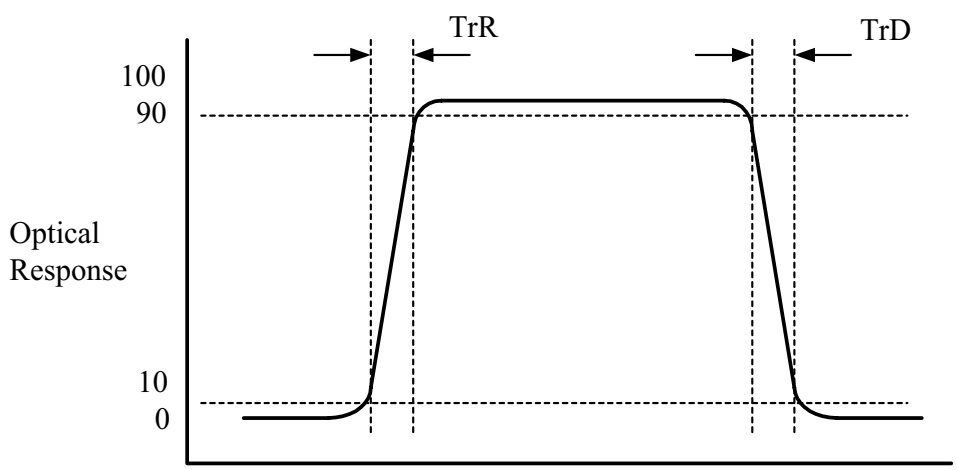
NOTE: The variation in surface luminance, δ WHITE is defined by measuring LON at watch test position 1 through 5, and then dividing maximum LON of 5 points luminance by minimum LON of each 5 points luminance.

δ WHITE = Maximum(LON1, LON2,....,LON5)/Minimum(LON1, LON2,....,LON5)

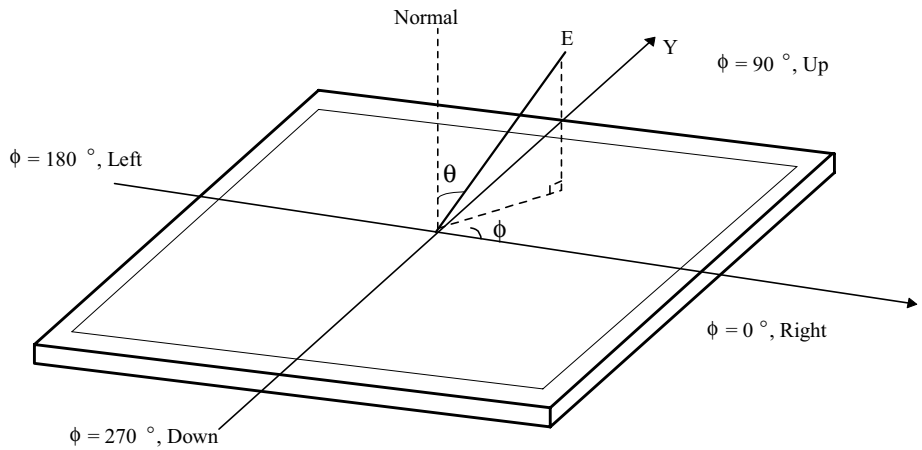


NOTE: This shall be measured at center of the screen.

NOTE: Response time is the time required for the display to transition from black to white(Rise Time, TrR) and from white to black(Decay TIme, TrD).



NOTE: Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizonal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface.


Normal
E
Y
ϕ = 90 °, Up
ϕ = 180 °, Left
θ
ϕ
ϕ = 0 °, Right
ϕ = 270 °, Down

Display Electrical and Functional Specifications

Input and Output Signals

This LCD TV shall have the ability to operate under following range with stable green color of LED indicated. Any signal outside of the limits(any combination) shall not cause any damage to the unit or driving source. The range of operations is:

- CVBS and Y/C

  NTSC(3.58M), NTSC(4.43M), Japan(50Hz)

  PAL(4.43M, 50 Hz) B, G, D, K, H, I, PAL(4.43M, 60 Hz)

  SECAM D, K

- TV Systems

  NTSC-M/USA(3.58M) system Receivable

  VHF/UHF/CATV, 181 channels auto-present tuning

  Full frequency range from channel 2(55.25 MHz) to channel 69(801.25MHz)

- YUV inputs:

  YCbCr: 480i/576i

  YPbPr: 480p/576p, 1080i, 720p

- VGA and DVI-D inputs

  Horizontal input frequency range: 30KHz to 70KHz

  Vertical input frequency range: 56Hz to 85 Hz

  Max. Resolution: 1280 x 768

  Down Scaling support 1152x 870 75Hz

  1280 x 960 60/85Hz

  1280 x 1024 60/75/85 Hz

The LED shall indicate green color and OSD will show “Out of Range” message within 5 seconds after signal is out of range or down scaling support selected input.

This LCD TV shall catch signal sources from TV, AV1, AV2, AV3, AV4, VGA and DVI-D automatically during power up, which it is unnecessary to select inputs from OSD or hot keys.

The priority to catch signal sources shall be 1st) User selected source from hot key or OSD, 2 nd) Last soutce used, 3rd) TV input(last power down channel), 4 th) AV1 YUV input, 5 th) AV1 S-video input, 6th) AV1 CVBS input, 7th) AV2 YUV input, 8th) AV2 S-video input, 9th) AV2 CVBS input, 13th) VGA input, 14th)DVI-D input. THe LCD TV shall complete selection and show media on screen within 5 seconds(including Auto Adjust)

The LED shall indicate green color and OSD will show “No Signal” within 3 seconds while there is missing signal from selected input.

The LED shall indicate green color and OSD will show “No VGA Connection” within 5 seconds whild VGA input is selected but has no connection on VGA port.

The LED shall indicate green color and OSD will show “Go Into Power Save” within 5 seconds after meet condition of power saving mode.

This LCD TV shall go into power saving state in 5 seconds later of showing” Go Into Power Save”. THe LED shall indicate amber color during power saving mode.

This LCD TV shall proceed Auto Adjust while VGA or DVI-D input is selected and1)Power up, 2) Auto Adjust pressed from OSD, 3) Factory preset acted, 4) New mode is detected. Auto adjust shall be completed within 3 seconds.

The AV1 input supports YUV(YCbCr and YPbPr), S-video and CVBS video inputs, If the YUV, S-video and CVBS video inputs are connected with cables, the priority shall be 1st)YUV input, 2nd)S-video input, 3rd) CVBS video input.

The AV2 input supports YUV(YCbCr and YPbPr), S-video and CVBS video inputs, If the YUV, S-video and CVBS video inputs are connected with cables, the priority shall be 1st)YUV input, 2nd)S-video input, 3rd) CVBS video input.

The AV3 could be set either input or output from OSD. Whild it is set to be output, AV3 would carry CVBS signal and stereo audio out from TV tuner.

The AV4 input supports both of S-video adn YUV(YCbCr and YPbPr) input. IF both of the S-video and YUV inputs are connected with cables, the YUV takes priority.

Video Input

CVBS Input Signal

- Type: Analog
- Polarity: Positive
- Level: 1 Vp-p(with Sync.)
- Impedance: 75 Ω +/- 5%
- Interface: RCA Jack, Yellow color

S-Video Input Signal

- Type: Analog
- Polarity: Positive
- Level: Y:1 Vp-p(with Sync.) C: 0.286 Vp-p
- Impedance: 75 Ω +/- 5%
- Interface: S-Din, Black color

YUV(YCbCr or YPbPr) Input Signal

- Type: Analog
- Polarity: Positive
- Level: Y:1 Vp-p(with sync) U/V:0.7 Vp-p
- Impedance: 75 Ω +/- 5%
- Interface: RCA Jack, Y: Green color, U: Blue color, V: Red color

Audio input, output and Speaker

Audio input

- Level: 500 m Vrms
- TYpe: Stereo R/L Channels
- Impedance: More than 22 K Ω
- Interface: RCA Jack, R:Red color, L:White color

PC Stereo Input

- Level: 500m Vrms
- Type: Stereo R/L Channels
- Impedance: More than 22 K Ω

- Interface: RCA Jack, R:Red color, L: White color

Audio Line Output

- Level: 400 m Vrms
- Type: Stereo R/L Channels
- Interface: 3.5mm Stereo jack

Earphone Output

- Level: 0.5W/per Channel(typ) for 16Ω earphone
- Type: Stereo R/L Channels
- Interface: 3.5mm Stereo jack, Pantone 157C, Orange color

Built-in Speaker

- Max. Audio output(at 10% THD max.) at 1.0 Vp-p/1KHz input: 10W +10W
- Sound Distortion at 250mW/1KHz:1% THD max
- Speaker: 20W(10W+10W)
- Speaker impedance: 4Ω at 1KHz
- Residual Hum at Min. Volume: 500 uW Max.
- Max. Hum at Max. Volume: 1000 uW Max.

RF Input

Intermediate Frequencies

No	SYSTEM	NTSC-M/USA	UNIT
1	Picture Intermediate Frequency	45.75	MHz
2	Colour	42.17	MHz
3	Sound Carrier	41025	MHz

Channel Coverage

No	BAND	FREQUENCY
1	Low band	55.25 to 160.00 MHz
2	Mid band	160.00 to 442.00 MHz
3	High band	442.00 to 801.25 MHz

Video and Audio Characteristics

No	Parameter		MIN	TYP	MAX	UNIT
1	Video output level		0.8	1.0	1.2	Vp-p
2	Video S/N		44	48	-	dB
3	Noise limiting sensitivity		-	44	49	dBuV
4	Video amplitude frequency characteristics	1.0 MHz	-2.0	0	+2.0	dB
		2.0 MHz	-2.0	0	+2.0	
		3.0 MHz	-3.0	-0.5	+2.0	
		4.0 MHz	-4.5	-1.5	+1.5	
5	Audio output level		140	290	440	mVrms
6	Audio S/N		40	48	-	dB

VGA Input

Separate and Composite Sync

- Level: Low: 0 ro 0.8V High: 2.0 to 5V
- Polarity: Positive or Negative
- Impedance: 1K Ω or higher

R.G.B Input Signal(comply with VESA VSIS, Ver.1, Rev.1)

- Level: 0 to 700 mV Positive
- Rise/Fall time: <= 5 ns
- Overshoot: <= 10% of maximum transition
- Impedance: 75Ω ±5 % from DC up to 100 MHz

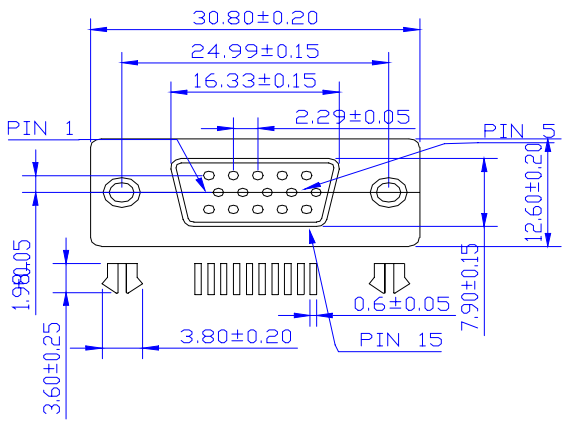
Current Sink and Source

When low level is asserted, the maximum current sink from any single monitor sync input node to the driver is 2.0mA. When high level is asserted, the maximum current source from the driver to any single monitor sync input node is 500 uA.

Sync. On Green (SOG)

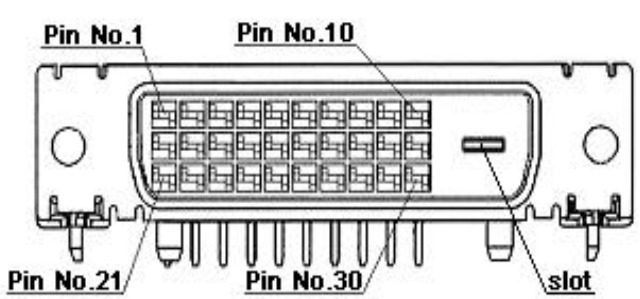
- Level: 300mV
- Polarity: Negative
- Impedance: 1KΩ or higher

D-Sub Pin Out(Pantone 661C, Blue color)



PIN	Signal	PIN	Signal
1	Red Video	9	+5V
2	Green Video	10	VGA-CONN(Sync GND)
3	Blue Video	11	Ground
4	Ground	12	SDA (DDC Data)
5	Ground	13	Horizontal Sync
6	Red Ground	14	Vertical Sync
7	Green Ground	15	SCL(DDC Clock)
8	Blue Ground		

DVI-D Input



PIN	Signal	PIN	Signal
1	TMDS Data 2-	13	TMDS Data
2	TMDS Data 2+	14	+5V POWER
3	TMDS Data 2/4 shield	15	Grond(For +5 V)
4	TMDS Data 4-	16	Hot Plug Detect
5	TMDS Data 4+	17	TMDS Data 0-
6	DDC Clock	18	TMDS Data 0+
7	DDC Data	19	TMDS Data 0/5 shield
8	No Connect	20	TMDS Data 5-
9	TMDS Data 1-	21	TMDS Data 5+
10	TMDS Data1+	22	TMDS Clock shield
11	TMDS Data 1/3 shield	23	TMDS Clock+
12	TMDS Data 3-	24	TMDS Clock-

Terminals Configuration

Terminal	Configuration
RF	75 Ω Unbalance F Type connector
AV1	RCA jack for Video, YUV and Audio; S-Din for S-video
AV2	RCA jack for Video, YUV and Audio; S-Din for S-video
AV4	RCA jack for YUV and Audio; S-Din for S-video
AV3	RCA jack for Video and Audio (In/Out selected by OSD)
PC Analog Port	D-Sub 15 pin
PC Stereo input	3.5mm ϕ Earphone Jack
Audio Line Out	3.5mm ϕ Earphone Jack
Earphone Out	3.5mm ϕ Earphone Jack
PC Digital Port	DVI-D/HDCP
Service Port	ISP through D-Sub

TV System

TV System Configuration

Item	Configuration
Destination	USA, Canada, Philippines, Korea, Taiwan...
Color System	NTSC
Sound System	M
Stereo System	BTSC/A2
Channel System	USA(Standard, IRC and HRC) Full frequency range from ch A2 to ch A69

De-interlace and Filter

The De-interlace Processor of this LCD TV shall be pixel-based motion and edge adaptive de-interlacing which converts multiple(interlaced) video fields into a single(progressive scan)video frame with twice the number of active scan lines as each of the source fields.

The LCD TV also can detect the input video source sequence automatically. Two types of progressive scan source sequencing can be detected, i.e. 2:2 pull down and 3:2 pull down.

This LCD TV shall have motion adaptive 3D digital Y/C separation improves the lumachroma separation process such that the luma and chroma are perfectly separated for a stationary image.

This LCD TV shall adopt a motion adaptive filter based noise reduction to successfully determine the change among frames resulting from noise or moving object.

Firmware Specifications

Preset Mode for VGA and DVI-D Inputs

16 factory pre-set modes for VGA and DVI-D inputs are saved during the manufacturing process.

Preset mode	Pixel Format	Hor. Freq.(kHz)	Hor. Polarity	Vert. Freq.(Hz)	Vertical Polarity	Standard
1	720*400	31.47	-	70	+	VGA
2	640*480	31.47	-	60	-	VGA
3	640*480	37.861	-	72	-	VESA
4	640*480	37.861	-	75	-	VESA
5	640*480	43.4	-	85	-	VESA
6	800*600	35.156	-	56	+	VESA
7	800*600	37.879	+	60	+	VESA
8	800*600	48.077	+	72	+	VESA
9	800*600	46.875	+	75	+	VESA
10	800*600	53.7	+	85	+	VESA
11	1024*768	48.363	-	60	-	VESA
12	1024*768	56.476	-	70	-	VESA
13	1024*768	60.023	+	75	+	VESA
14	1024*768	68.7	+	85	+	VESA
15	832*624	49.7	-	75	-	MAC

Preset mode	Pixel Format	Hor. Freq.(kHz)	Hor. Polarity	Vert. Freq.(Hz)	Vertical Polarity	Standard
16	1024*768	60.2	-	75	-	MAC

This LCD TV shall have 10 or more user modes for user to creat own timing.

This LCD TV would detect the used mode automatically.

Power Saving

While VGA or DVI-D is selected to be input, this LCD TV is equipped with a power management according to VESA DPMS. There is a delay of 5 seconds before the transition from On-state to power saving state to avoid unintentionally entering of a power saving state during display resolution and timing mode changes. During the period of delay, the LED shall indicate green color and OSD will show " GO INTO POWER SAVE". Transition from any power saving state to another can be instantaneous. The recovery from Off-state requires no manual power on.

Mode	Hsync	Vsync	Video	Power	Indication	Recovery Time
Power on	On	On	Active	<210W	Green	--
Stans-by	Off	On	Off	<5W	Amber	<3s
Suspend	On	Off	Off	<5W	Amber	<3s
Off-state	Off	Off	Off	<5W	Amber	<3s
Power off	X	X	X	<5W	Dark	Turn on < 5s

Sync on means: normal operation

Sync off means: Hysnc: f<1 KHz, duty cycle > 255, Vsync: f<10 Hz, duty cycle >25%

The power-consumption is valid over the specified voltage and frequency range.

Power comsuption is measured from AC source.

There are no power saving modes for TV, AV1, AV2 AV3 and AV4 inputs.

VESA DDC

The VGA and DVI-D inputs shall be capable of continuously transmitting its Extended Display Identification(EDID) information using Display Data Channel. It shall automatically switch to DDC2 mode if a DDC2 capable host is detected in accordance with the VESA DDC standard.

In addition, the display can respond to a request for EDID, to be transmitted using DDC2, level B commands. If a DDC2 capable host is detected by the display, the display shall switch to DDC2 communication.

The EDID shall contain the manufacture name code QCI, product code, date of manufacture, and serial number.

For complete EDID data structure, please refer to VESA Extended Display Idenrification

Data Standard.

Hardware inplementation may be either intergrate into micro-controller or be a separate electrical component. EDID memory must be protected against writing or other corruption through customer-accessible electrical connection and required communication channels. Password protection, use of an unpublished enable register, or use of direct electrical connection is acceptable levels of protection provided that the power-on Default State is that disabling writing. The serial number fields in the EDID must contain a unique identifying numbers among units of the same model. EDID Table is defined as below:

VGA input

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	09	EE	80	0C	00	00	00	00
1	2D	0E	01	03	68	47	28	78	E8	28	C1	A4	57	46	9D	25
2	14	47	4B	AF	EE	00	31	59	45	59	61	59	00	00	00	00
3	00	00	00	00	00	00	66	21	50	B0	51	00	1B	30	40	70
4	36	00	C6	90	21	00	00	1E	00	00	00	FD	00	32	55	1E
5	50	08	00	0A	20	20	20	20	20	20	00	00	00	FC	00	42
6	54	56	42	33	32	55	53	0A	20	20	20	20	00	00	00	FC
7	00	42	54	56	42	33	32	55	53	0A	20	20	20	20	00	1A

DVI-D input

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	09	EE	80	0C	00	00	00	00
1	2D	0E	01	03	E8	47	28	78	E8	28	C1	A4	57	46	9D	25
2	12	47	4B	AF	EE	00	31	59	45	59	61	59	00	00	00	00
3	00	00	00	00	00	00	66	21	50	B0	51	00	1B	30	40	70
4	36	00	C6	90	21	00	00	1E	00	00	00	FD	00	32	55	1E
5	50	08	00	0A	20	20	20	20	20	20	00	00	00	FC	00	42
6	54	56	42	33	32	55	53	0A	20	20	20	20	00	00	00	FC
7	00	42	54	56	42	33	32	55	53	0A	20	20	20	20	00	9A

Control Button

Key	Function
POWER	Software On/Off
MENU/EXIT	Press this button to open the OSD or Enter function
CH ▲ or CH ▼	When OSD is on: Press ▲ key to move icon to up position Press ▼ key to move icon to down position When OSD is off: Press these buttons to select the TV channel in sequence.
VOL ◄ or VOL ►	When OSD is on: Press ► key to increase value or move icon to right position Press ◄ key to decrease value or move icon to left position When OSD is off: Press these buttons to select the volume level.
INPUT	Press this button to select the input: TV → AV1 → AV2 → AV3 → AV4 → VGA → DVI

Remote controller

Key Name	Key Functions	PIP/Dual Pictures Selected
POWER	Power on/off	
INPUT	Change the input source. TV/AV1/AV2/AV3/AV4/VGA/ DVI-D	YPbPr/VGA/DVI-D
INFO	Display channel and source/Disable display	
CH+	Channel up	
CH-	Channel down	
VOL+	Volume up	
VOL-	Volume down	
MUTE	Mutes or restores the sound volume	
TV	Direct access of TV input	
AV1	Direct Access of AV1 input	
AV2	Direct Access of AV2 input	
AV3	Direct Access of AV3 input	
YPbPr	Direct Access of YPbPr input	
VGA	Direct Access of VGA input	

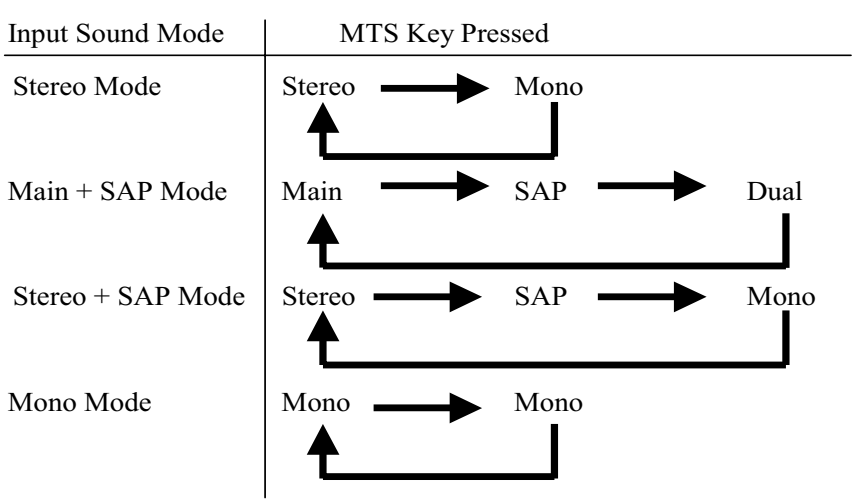
Key Name	Key Functions	PIP/Dual Pictures Selected
DVI	Direct Access of DVI input	
MTS	Multi channel Television Soune(MTS)- Cycles through Stereo, MONO and SAP	
LAST	Recalls the last viewed channel	
0-9	Number keys	
SLEEP	Turns on the sleep timer- Off/30/60/90/120	
MENU	Displays menus for TV and other options	
WIDE	Selects the picture format(16:9, 4:3, LETTERBOX, PANORAMA)that best meets your viewing requirement	
PIP	Turns picture-in-picture(PIP) mode on and off	
CH SCAN	Scans four channels at a time in TV mode	
FREEZE	Freezes the display image	
UP ARROW	Navigate up in the OSD	
DOWN ARROW	Navigate down in the OSD	
LEFT ARROW	Navigate left in the OSD	
RIGHT ARROW	Navigate right in the OSD	
OK	Accept the selected item in the OSD	
EXIT	Exits from the on-screen display(OSD)	
C.C.	Turns CLOSED CAPTION mode on and off	

Sound System

The System has a feature that allows reception of sound other than the main audio for the program.

This feature is called Multi-channel Television sound(MTS). The System with MTS can receive MONO sound, STEREO sound and Secondary Audio Programs(SAP). The SAP feature allows a TV station to broadcast other information, which could be audio(MONO) in another language or something completely different like weather information.

The inages display examples when receiving MTS and SAP are as follows:



- Stereo broadcasts

  View programs like live sporting events, shows and concerts in dynamic stereo sound.
- SAP broadcasts

  Receive TV broadcasts in either MAIN or SAP sound.

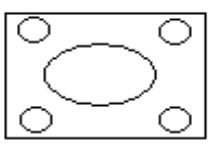
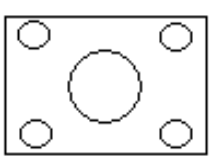
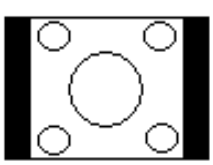
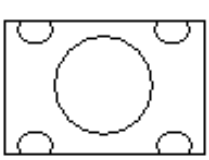
  MAIN sound: The normal program soundtrack(either in mono or stereo)

  SAP sound: Listen to second language, supplementary commentary and other information.(SAP is mono sound)
- Once “MONO” mode is selected

  The sound remains mono even if the system receives a stereo broadcast. You must switch the mode back to “STEREO” if you want to hear stereo sound again.
- Selecting MTS

  while in the input mode does not change the type of sound. In this case, sound is determined by the video source.

View Mode

	Panorama (4 : 3 strech): This mode is for 4 : 3 input picture. It is stretched to full-screen. The picture is progressively stretched from the center third of the screen outwards to the edges.
	16 : 9 (Full screen): Will display the picture at full screen with linear scaling.
	4 : 3 : Will display a 4 : 3 input picture at its standard. 4 : 3 size without any stretching. Black stripes will be visible down theleft and right sides of the picture.
	16 : 9 Cinema (Letter Box): This is useful for simulated 16 : 9 formate from DVD player. Select this view mode to have over screen. Default to stretches 1.85:1 picture format to full screen. (Note: For 2.35:1 picture format, there will still be a small black band on the top and bottom on the screen.)

There shall have view mode information shown on top-left corner for around 10 seconds while change view mode from remote controller.

If input picture is 4:3 format in video source, user can have the following view mode selections:

Auto: It can be Panorama(4:3 strech) or 4:3 view mode depending on 4:3 auto picture setting in OSD menu.

16:9 Cinema

4:3

16:9(full-screen)

If input source is in PC source, user can have the following view mode selections:

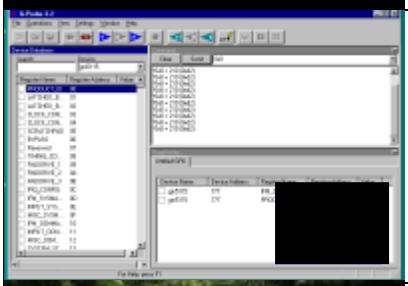
Full screen(16:9)

Aspect ratio: To keep the same aspect ration as input picture

Multi Picture

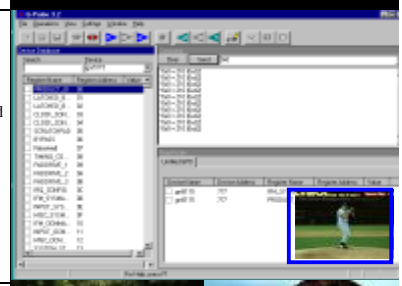
Duel Picture

Step 1: Press PIP key once to display duel picture as lef
side.
Step 2: Press Source key to or input channel number fo
2nd media.
The screen would be as right side.



Picture in Picture

Step 1: Press PIP key twice to display picture in picture as left side.
Step 2: Press Source key or input channel number for 2nd media. Please refer to right figure.



Channel Scan

Press Scan key once in TV or CATV mode to active channel scan. This TV would start to scan channels from original channel.

Press Scan key once again to stop channel scan and return to main source.

Freeze

Press Freeze key to freeze screen.

Press Freeze key again to release it.
As left figure, froze screen would be on left side and remain lived screen on right side.

There are two source groups, group 1 including TV, AV1, AV2, AV3 and YCbCr, group 2 including YPbPr, VGA and DVI-D. Multi picture function is available for different group source only.

Ex. TV could have picture and picture to YPbPr, VGA or DVI-D.

TV could not have PIP function to AV1, AV2, AV3 and YCbCr

Performance Specifications

The performance shall be check at 25oC environment.

White Balance and Uniformity

Set contrast and brightness at maximum.

Standard: 10000 degree K, +/- 0.03 on x and y value.

Warm: 6500 degree K, +/- 0.03 on x and y value.

Cold: 14000 degree K, +/- 0.03 on x and y value.

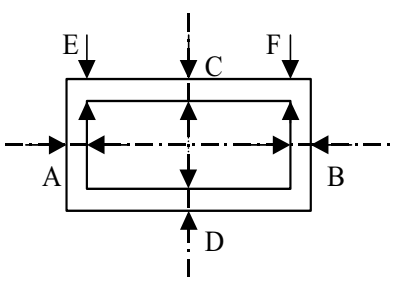
Display Area, Phase, Center and Tilt

Display Area: 43 inches diagonal

H-Ohase: | A-B | Less than 1.5 mm

V-Center: | C-D | Less than 1.5 mm

Tilt: | E-F| Less than 1 mm



Max. Brightness

The brightness should exceed 350 Cd/m^2 whild set both of contrast and brightness to max. and color temperature of Standard is selected.(Typical value would be 500 Cd/m^2)

Acoustical Noise

With the display operation, the sound measured is following ISO-7779 and shall be less than 35 dB/A in standard distance of 1m. Also, the display should not emit easily perceptible abnormal sounds.

Power Supply Electrical Specifications

The power supply for this product is ans internal converter, with a non-replaceable fuse internally.

This converter shall be well designed to meet CE mark requirement.

Input Voltage and Frequency Range

The operating range of line voltage shall be:

AC90 volts to 264 volts, 46 Hz to 63 Hz

Power comsuption shall be under 210 Watts

variation of th line voltage throughout the applicable operating range shall not result in any visible image anomalies such as image movement, changes in light output, nor changes in image stability or quality.

Line Fuse

The AC input shall be fused and become electrically open as a result of an unsafe current condition. This fuse is inside the power supply converter and is not user replaceable, and must be returned for replacement.

This fuse shall be well selected to handle inrush current for all combinations of line voltage and frequency.

Hot plug and power on/off sequence

Once hot plug occurs, at the very first time, the initial current should be limited at 2.3 amps or liser when power off. current sill stay below 100m amps while power on, then ramp up to full power(about 2.3 amps at AC 120 volts) within 5 seconds when power-up signal is triggered. For the shut down sequence, the current will stay at full power for about 150m seconds or less, then ramp down to 100 m amps within 1 second.

Power on LED Location and Type

Inverter

This inverter which is used to light up back-light of LCD panel shall be well designed to meet requirement of panel's specification.

Accessories

Cables

Power Cord

- Length: 1.8 meters+15mm/-0 mm
- Cable Color: Black
- Quantity: one

AV(Euro-SCART) Cable

- Length: 1.8 meters+15mm/-0 mm
- Cable Color: Black
- Quantity: one

TV Antenna Cable

- Length: 12.5 meters+15mm/-0 mm
- Cable Color: transparent
- Quantity: one

Remote Controller

- Multi-function remote controller
- With two AAA battery inside
- Quantity: One

I/O Board (Reserved)

Others

- one remote controller users guide
- warranty card

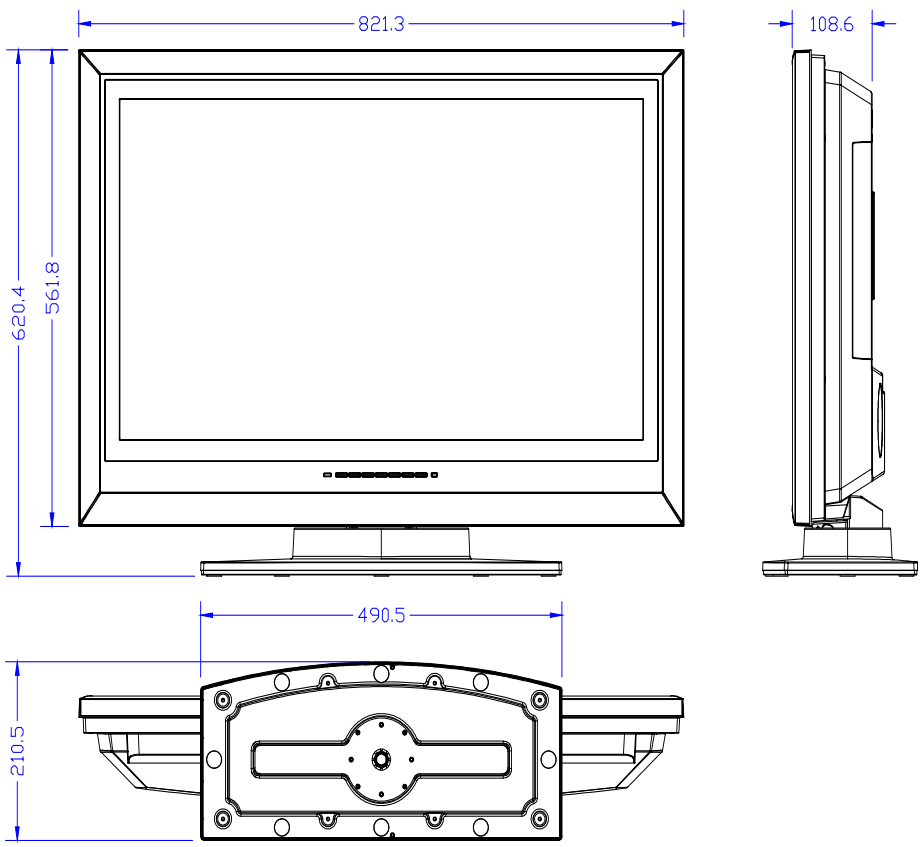
Physical Dimensions

Overall Dimension

Height: 620.40 mm

Width: 821.30 mm

Depth: 210.50 mm



Base

Swivel: 40^{o} (R: 20^{o}, L: 20^{o})

Mass

Mass of display with cable approx.: 20.g Kg

VESA Mounting Holes

According to Vesa FPMPMI standard.

4 holes 100 mm x 100 mm (4 mm, 0.7 pitch threaded) in the rear center for ARM

4 holes 200 mm x 100 mm (4 mm, 0.7 pitch threaded) in the rear center for ARM

Regulatory and Reliability Requirements

Regulatory Requirements

Product Safety Agency Approvals

this display unit complies with following safety standards.

UL compliance: UL6500 for Audio, Video and similar electronic apparatus.

CSA compliance(or cUL) : CAN/CSA E60065-00 for Audio, Video and similar electronic apparatus.

Emissions/Susceptibility

This display unit complies with the following EMC regulations

FCC compliance: Subpart 15 B of DoC

ICES03 compliance

Environment Requirements

This display shall meet the following environmental requirements under normal operating conditions

Operating

$25^{o} \pm 5^{o}$ for Purity, White Point, Mis-convergence, Luminance measurements and White uniformity measurement

operation temperature: $0^{o}C$ to $35^{o}C$

Operating humidity: 10% to 90%(non-condensing)

Storage and Shipping

- Sotrage temperature: $-20^{o}C$ to $60^{o}C$
- Shipping temperature: $-20^{o}C$ to $60^{o}C$
- Storage humidity: 10% to 90%(non-condensing)
- Shipping humidity: 10% to 90%(non-condensing)

Altitude

Units tested at an altitude up to 12000 feet must operate at normal conditions without exhibiting abnormal behavior such as arcing or shutdown.

- Operating altitude: 0 to 12000 feet
- Shipping altitude: 0 to 40000 feet
- Storage altitude: 0 to 40000 feet