User’s Manual

MC13H & MM13H series

CONTENTS

Safety Instructions

Symbol		Explanation
	CAUTION !	RISK OF ELCTRIC SHOCK DO NOT OPEN
		TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER(OR BACK) NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

	MEDICAL EQUIPMENT 13XX E246477 WITH RESPECT TO ELECTRIC SHOCK.FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL60601-1, AND CAN/CSA C22.2 NO. 601.1 MEDICAL EQUIPMENT CERTIFIED FOR CANADA

Grounding Reliability can only be achieved when the equipment is connected to an equivalent receptacle with marked “Hospital Only” or “Hospital Grade”

Explanation of Graphical Symbols

	Attention, consult ACCOMPANYING DOCUMENTS
	The lightning flash with arrowhead symbol, within an equilateral triangle ,is intended to alert the be user to the presence of un-insulated ”dangerous voltage” within the product’s enclosure that of may sufficient magnitude to constitute a risk of electric shock to persons
	Stand-by Switch. Press to turn the monitor on or off(Stand-by mode).
	Alternating Current

Regulatory Information

FCC RF
INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television receptions, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-. Reorient or relocate the receiving antenna.

-. Increase the separation between the equipment receiver.

-. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-. Consult the or an experienced radio /TV technician for help.

> CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE MARKING DECLARATION OF CONFORMITY

This LCD Monitor complies with the requirements of the EC Directive 89/336/EEC"EMC Directive" and 93/42/EEC - Medical Device directive

The electro-magnetic susceptibility has been chosen at a level that gives correct operation in residential areas. Business and light industrial premises and small-scale enterprises, inside as well as outside of the buildings. All places of operation are characterized by connection to the public low voltage power supply system.

Classification:

- Protection against electric shock: Class I
- Applied Parts No Applied Parts.
- Protection against harmful ingress of water: ordinary IPX0
- Mode of operation: Continuous
- Degree of safety in the presence of flammable anesthetics mixture with air or with oxygen or with nitrous oxide
- Not suitable for use in the presence of a flammable anesthetics mixture with air or with oxygen or with nitrous oxide.

Precautions

● Plug the power cord into a properly grounded outlet. There is the risk of electric shock.

● If you hear a noise or smell smoke from the view box or power cord, unplug the power cord immediately, and call service center. There is the risk of electric shock or fire

● Do not overload an electrical outlet with too many devices. There is the risk of fire

● Do not unplug from the outlet by pulling the power cord or when your hands are wet.

Do not bend the power cord excessively or place heavy objects on it.

Keep children and pets away from the power cord as they may cause damage the power cord.

● Do not use a damaged power cord or plug. Make sure the plug fits snugly into the outlet.

● Unplug the Power cord for isolation from supply if you use not monitor for a long time..

● Do not expose this monitor to the direct sun-light.

● Do not allow any object or liquid to enter inside this monitor.

There is the risk of electric shock, fire, or damage to the monitor

● Do not attempt to disassemble, unfix or modify the monitor.

● Keep the monitor away from high temperature, humidity and dust etc..

-> Operating environment Temperature : 10~40 degrees Celsius (℃)

Humidity : 10~80 relative humidity (%)

● Use a proper voltage/current level indicated.

● The device could be send back to the manufacturer for recycling or proper disposal after their useful lives. Alternatively the device shall be disposed in accordance with national laws after their useful lives.

● Equipment with signal input / signal output connectors should either indicate the connected equipment comply with IEC 60601-1 and / or IEC 60601-1-1 harmonized national standard or the combination should be evaluated.

● This medical monitor is designed for viewing medical X-Ray Images

Before setting up

Before setting up the LCD monitor, please read this manual to help your understanding of the Monochrome TFT-LCD Monitor.

- Install the LCD Monitor on a flat place.
- Don't install in the place with much of water or moisture
- Put the LCD Monitor in a place with low humidity and a few of dust.
- Don't overload an electrical outlet with too many devices. There is the risk of fire.
- Don't expose the LCD monitor to the direct sun light.
- Keep the monitor away from high temperature.
- Do not place the monitor in hazardous position.

NOTICE

- Please clean the panel and cabinet of monitor with a clean damp cloth and then wipe and dry with a clean soft cloth
- Please do not use volatile organic solvents such as alcohol, thinner, and benzenes when cleaning.

  These can be damaged to the front panel
- Do not attempt to service, modify or dismantle this product.

  Recommended service should be done at the prescribed intervals by Heeyoung Service engineer, Agent or a trained Technician.

Features & checking the products

Features of Lumimed series

- High luminance & High contrast ratio
- Built-in 10-bit LUT
- Integrated Stable Brightness Control System
- OSD control for user control
- Digital Video Interface
- Video mode(CVBS,S-Video) support
- Narrow bezel design for space-saving

Checking the products

The following accessories are included in package.
Check to see if they are enclosed with the monitor.
If anything is missing or damaged, please contact your local dealer.

■ Monitor

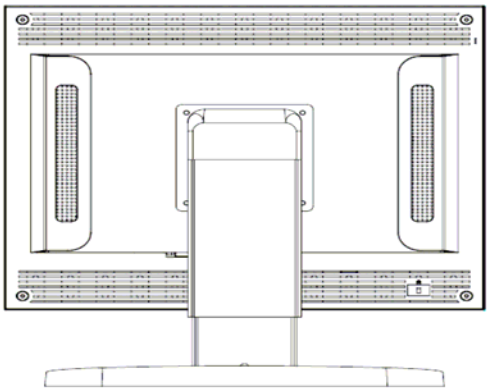
- TFT-LCD Monitor

■ Accessory Box

- 15Pin D-sub cable
- Power Cord
- Power DC adaptor
- User Manual
- DVI-D Signal Cable
- RCA Cable
- S-Video cable

Setting up the LCD Monitor

Feature of Connectors



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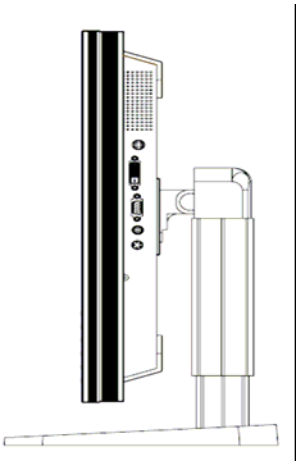

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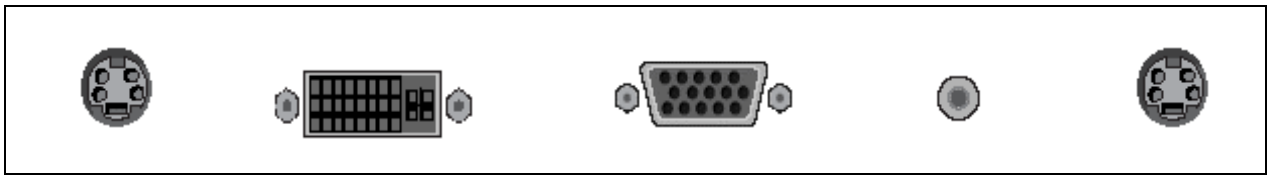


Description of Connectors

No	Name	Cable Connections
①	DC input	Connect the DC jack of the Power adaptor
②	DVI	Digital Video Interface connection from PC
③	PC	15 Pin D-sub cable connection from PC
④	Video	Connect the RCA cable from the video system
⑤	S-video	Connect the S-video cable from the video system

Setting up the LCD Monitor

Connecting the LCD Monitor

1) Connect the DVI-D signal cable to the signal port of the Graphic Card in your computer.
2) Connect the D-sub signal cable to the signal port of the Graphic Card in your computer.
3) Connect the DC input cable to the DC input port on the rear side of the monitor
4) Connect the RCA,S-video cable to the video system like a DVD
5) Turn on the monitor with the power switch of the user control port.

Plug & Play

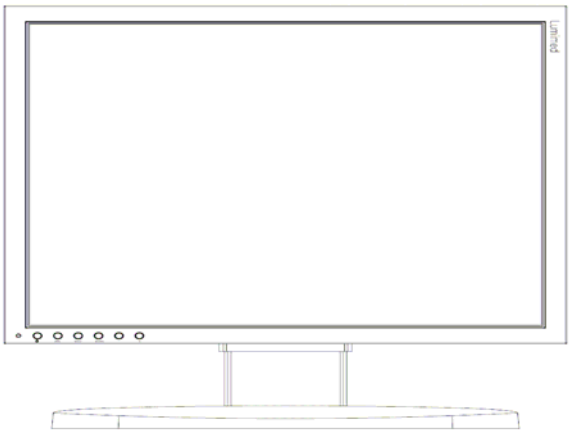
The adoption of the new VESA Plug & Play solution eliminates complicated and time consuming setup. It allows you to install your monitor in a Plug and Play compatible system without the usual manual hassles and confusion. Your PC system can easily identify and configure itself for use with your display. This monitor automatically tells the PC system its Extended Display Identification Data(EDID) using Display Data Channel(DDC) protocols so the PC system can automatically configure itself to use the flat panel display.

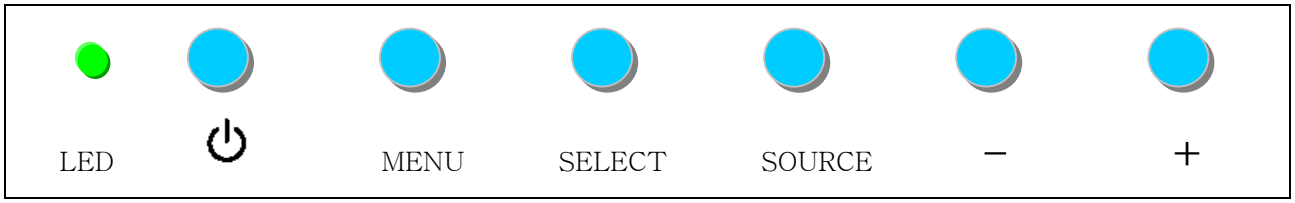
Warm-up Time

All LCD monitors need time to become thermally stable whenever you turn on the monitor After letting the monitor be turned off for a couple of hours.
Therefore, to achieve more accurate adjustments for parameters, allow the LCD monitor to be Warmed up for at least 20 minutes before making any screen adjustments.

Adjusting of OSD MENU

Features of OSD Controls





Description of Control ports

	Indicate Monitor power status by LED color Normal Operation : Green color Power Saving : Amber color Off Mode : off. Power on / off toggle button
MENU	Launch OSD Menu
SELECT	Menu select button. . In Directly hot-key function, you can adjust Auto-balance for various input mode of PC system
SOURCE	Select the input signal source
−	"−" Menu shift button. Press the "−" button to decrease You can adjust directly Brightness with +/− button
+	"+" Menu shift button. Press the "+" button to increase the brightness You can adjust directly Contrast with +/− button

Adjusting of OSD MENU

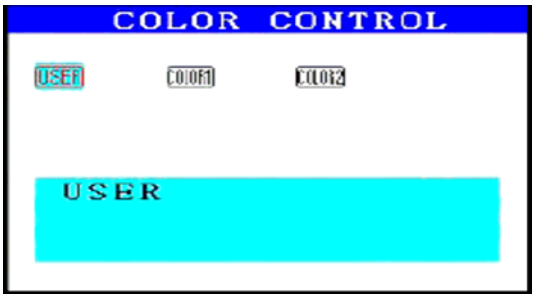
OSD Operation

Brightness: Changes the overall light intensity of the images being displayed

Contrast : Changes the ratio of light intensity between the brightness white and darkest black

You can adjust brightness/contrast values that you want by this hot key

COLOR



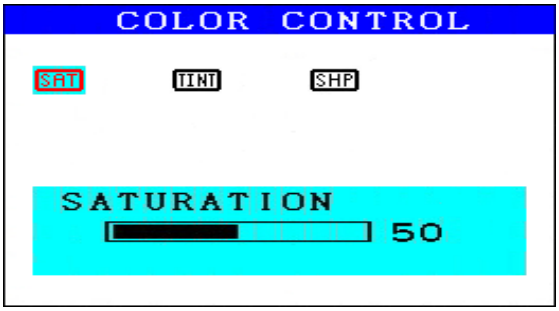
The tone of color can be changed from blush-white to reddish-white.

Color1 : Blue type

Color2 : Red type

User : You can adjust a color control.

COLOR CONTROL



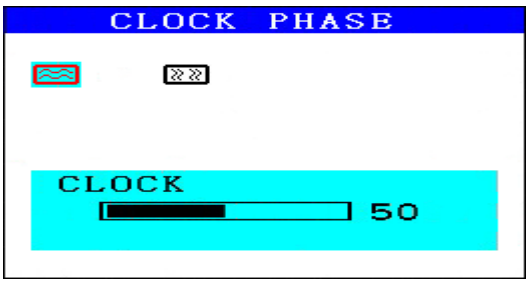
COLOR CONTROL : This function is used to Video mode

SATURATION : Adjust color intensity of the VIDEO

TINT : Adjust a color tone of the VIDEO

SHARPNESS : Make image of the VIDEO looked sharper

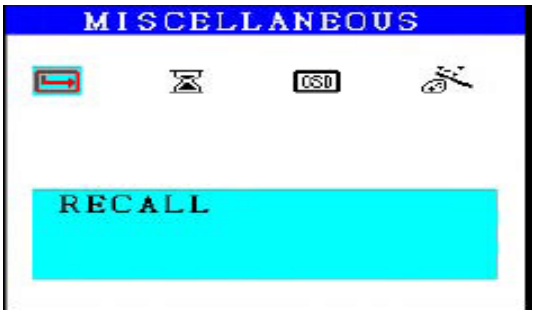
CLOCK/PHASE



When image is not clear, you can use clock/phase menu.

PHASE/CLOCK : Although 'automatically finds the optimum values of CLOCK and PHASE parameters as well

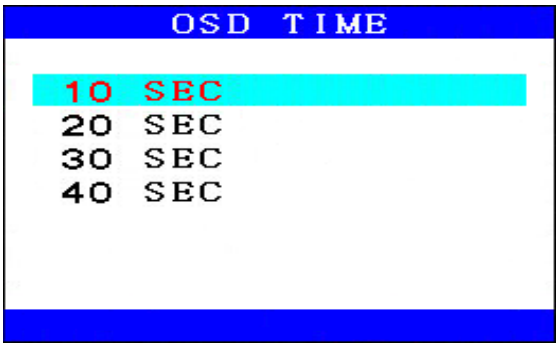
As image position, it may be necessary for you to adjust those parameters manually.



MICSELLANEOUS

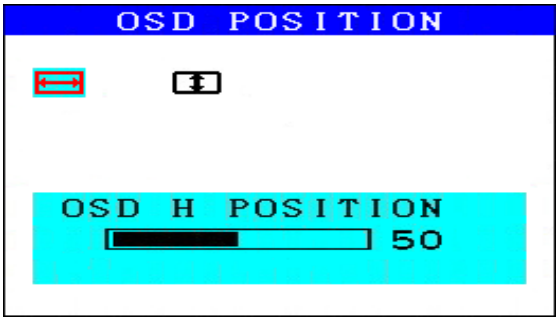
RECALL : Return to original status of factory mode.

OSD TIME



OSD TIME : Shows the OSD TIME displays from 10 to 30 seconds.

OSD POSITION



OSD POSITION : Moves the OSD MENU to the horizontal or vertical direction

LANGUAGE

LANGUAGE : Select the language

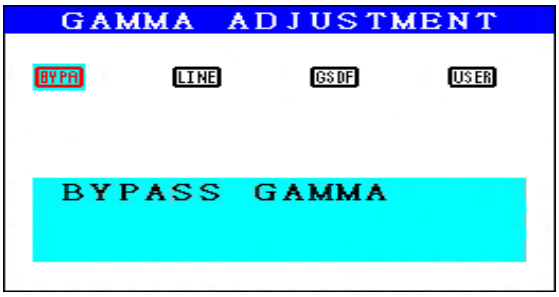
GAMMA ADJUSTMENT

BYPA : Control the gamma value without using LUT

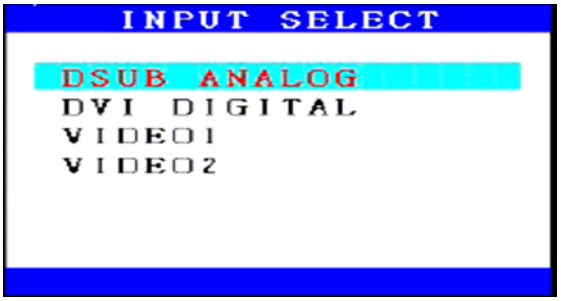
LINE: Control the gamma value without using LUT

GSDF : Control the gamma value with using10bit LUT

USER : Control the value



INPUT SELECT



INPUT SELECT : Select the input signal source.

Please see the Input signal source of below order

DSUB => DVI => CVBS => S-VIDEO => DSUB.

Adjusting the Viewing angle

- For optimal viewing, it is recommended to look at the full face of the monitor

and then adjust the monitor's height and angle to your own preference.

● Height ,Tilt ,Swivel

- You are able to adjust the monitor's height up to 110mm, angle up to 35degrees right and left, 35 degrees upward
- Adjust the monitor's height to the maximum.

● Rotation(Pivot) Function

- Rotate the panel 90 degree
  -> Portrait : Turn clockwise.
  ->Landscape : Turn counter clockwise.

NOTE

- Do not touch the LCD screen when you change the height or the angle.
- It may cause damage or break the LCD screen.
- Careful attention is required not to catch your fingers or hands when you change the height or the angle

<Swivel>

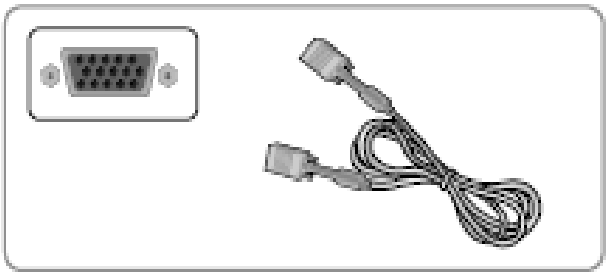
Appendix

DVI-D Connector

Pin	Signal	Pin	Signal	Pin	Signal
1	T.M.D.S.Data2-	9	T.M.D.S.Data1-	17	T.M.D.S.Data0-
2	T.M.D.S.Data2+	10	T.M.D.S.Data1+	18	T.M.D.S.Data0+
3	T.M.D.S.Data2/4 Shield	11	T.M.D.S.Data1/3 Shield	19	T.M.D.S.Data0/5 Shield
4	T.M.D.S.Data4-	12	T.M.D.S.Data3-	20	T.M.D.S.Data5-
5	T.M.D.S.Data4+	13	T.M.D.S.Data3+	21	T.M.D.S.Data5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground	23	T.M.D.S. Clock+
8	N.C	16	Monitor sense	24	T.M.D.S. Clock-
C1	N.C	C2	N.C	C3	N.C
C4	N.C	C5	N.C		

15 Pin D-Sub Connector

Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
1	Analog Red Input	6	Analog Red Ground	11	Ground
2	Analog Green Input	7	Analog Green Ground	12	DDC Data
3	Analog Blue Input	8	Analog Blue Ground	13	Horizontal Sync
4	Ground	9	No Connect	14	Vertical Sync
5	DDC Ground	10	Sync Ground	15	DDC Clock



15-pin D-Sub Signal Cable

Appendix

Power-Saving Mode

Mode	LED Indicator	Power Dissipation
Normal Operation	Green	Normal consumption
Power Saving Mode	Amber	Less than 5W
Off Mode	Off	Less than 5W

Display mode in PC mode

Mode	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Pixel Clock Frequency(MHz)	Sync Polarity(H/V)
VGA	720 X 400	31.468	70.087	28.322	-/+
	640 X 480	31.468	59.940	25.175	-/-
		35.000	66.670	30.240	-/-
		37.500	75.000	31.500	-/-
SVGA	800 X 600	37.879	60.300	40.000	+/+
		48.077	72.188	50.000	+/+
		46.875	75.000	49.500	+/+
XGA	1024 X 768	48.363	60.004	65.000	-/-
		56.476	70.000	75.000	-/-
		60.023	75.029	78.750	+/+
SXGA	1280 X 1024	63.981	60.020	108.000	+,-/+,-
		79.976	75.025	135.000	+/+

Appendix

SPEC

ITEM		DESCRIPTION	
LCD	Size	19.0 inch	
	Type	0.294 x 0.294mm	
	Pixel Pitch	a-Si TFT active matrix	
	Surface	Anti-Glare, Hard coating, 3H	
	Viewable Size	376 x 301mm	
	Color depth	16.7M colors	256Grey Colors(MM13H)
	Brightness	250cd/m2	1000cd/m2(MM13H)
	Contrast ratio	1000:1(Typical)	
	Response time	8ms(typical)	
	Viewing	U/D 75° /85° ,L/R 80°/80°	
Frequency	H-sync	15-85KHz	
	V-sync	50-80Hz	
Resolution	Analog	VGA to SXGA	
	Digital	VGA to SXGA	
Input Terminal	Analog RGB(VGA)	15 Pin D-sub	
	DVI	24Pin DVI-D	
	Analog Video	RCA jack/Mini Din 4Pin	
	BNC(Optional)	BNC jack x3 (Optional)	
Input Signal Spec	Analog RGB(VGA)	0.7Vpp R,G,B	
	DVI	DVI-D standard 1.0	
	Analog Video	S-Video,CVBS	
	BNC(Optional)	Composite(R,G,B SOG)	
User control	Button Function	MENU,SELECT,SELECT,POWER,+,_-	
	Method	OSD Control	
Plug & Play		VESA DDC-CI	
VESA Wall Mounting		VESA standard 100x100mm	
Power supply	AC Input	AC 100-240, 50-60Hz	
	Adaptor	DC12V, 6.67A	
	Power Saving	Less than 5W	
	Consumption	Typical 50W	
Operating Enviroment		Temperature 0°C – 40°C	
Optional		Touch-panel(Resistive),Protection sheet	

Appendix

Trouble Shooting

What you see	Suggested Actions
Screen is blank and power indicator is off	Make sure that the power cord is firmly connected and the LCD monitor is on.
No signal message	Make sure that the signal cable is firmly connected to computer Make sure that the computer is turned on
The display image is too dark or too light	Adjust the brightness & contrast
Screen is blank and power indicator light is steady red or blinks	The monitor is using its power saving system.(DPMS) Move the computer's mouse or press a key on the keyboard.

Contact

HEEYOUNG Co., Ltd.

1048-8, SHINGIL-DONG DANWON-GU ANSAN-CITY KYUNGGI-DO, 425-839 KOREA

Tel : 82-31-491-5506, Fax : 82-31-491-5509

Managing Directing B.H. Park	Tel) 82-31-491-5585 Email) beam0223@lumimed.com
R&D Division Director S.D. Lee	Tel) 82-31-491-5507(103) Email) sdlee@lumimed.com
Overseas Sales Department Manager Chris Soh	Tel) 82-31-491-5506(309) Email) cooljh@lumimed.com
Plant Manager W.S. Hong	Tel) 82-31-495-3121(312) Email) wshong@lumimed.com
Q.C Department Assistant Manager J.W. Kim	Tel) 82-31-495-3121(313) Email) jwkim@lumimed.com

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