

# User's Manual

**Lumimed<sup>®</sup>**

MM30



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## Safety Instructions

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

	<p>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</p> <p></p>
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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 user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may have 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 in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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 reception 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 and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio, TV technical for help.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment.

For 120Volt applications, use only UL listed detachable power cord with NEMA configuration 5-15P type(parallel blades) plug cap. For 240Volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type(tandem blades) plug cap.

### CE MARKING DECLARATION OF CONFORMITY

This LCD Monitor complies with the requirements of the EC Directive 89/336/EEC "EMC Directive" and 73/23/EEC "Low Voltage Directive" as amended by Directive 93/68/EEC

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

1. Plug the power cord into a properly grounded outlet.  
There is the risk of electric shock.
2. If you hear a noise or smell smoke from the view box or power cord, unplug the power code immediately, and call service center.  
There is the risk of electric shock or fire.
3. Do not overload an electrical outlet with too many devices.  
There is the risk of fire.
4. Do not unplug from the outlet by pulling the power cord or when your hands are wet.
5. 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.  
There is the risk of electric shock or fire.
6. Do not use a damaged power code or plug. Make sure the plug fits snugly into the outlet.  
There is the risk of electric shock or fire.
7. Do not expose this monitor to the direct sun-light.
8. 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.
9. Do not attempt to disassemble, unfix or modify the monitor.  
There is the risk of electric shock or fire.
10. Keep the monitor away from high temperature, humidity and dust etc..  
-> Operating environment : 10~40 degrees Celsius (°C)  
-> Operating environment : 10~80 relative humidity (%)
11. Use a proper voltage/current level indicated.
12. 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.
13. 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.
14. This medical monitor is designed for viewing medical X-Ray Imaging.
15. Unplug the Power cord for isolation from supply.

## Before setting up

- 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.
- Operating Temperature is 10°C ~ 40 °C
- Do not place the monitor in hazardous position.

### ■ Environmental conditions

	STORAGE
TEMPERATURE	-40°C ~ 70°C
HUMIDITY	10% ~ 100%
PRESSURE	500 hPa ~ 1060 hPa

## MAINTENANCE

- 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

## NOTICE

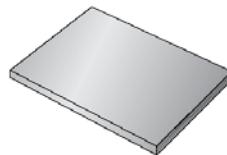
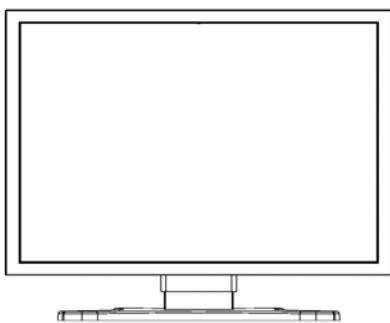
- The device could be send back to the manufacturer for recycling or proper disposal after their useful lives,. Alternatively the device shall be disposed in accordance with national laws after their useful lives.
- Do not attempt to service, modify or dismantle this product. Recommended service should be done at the prescribed intervals by Heeyoung Service engineer, Agent or a trained Technician.
- Attached every external cables are less than 3 meters in its length.

## Brief Specification of LCD Monitor

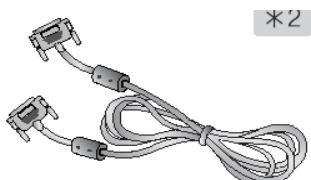
### Brief Specifications

Before setting up the LCD monitor, please read this manual to help your understanding of the 20.1 inch TFT-LCD Monochrome monitor.

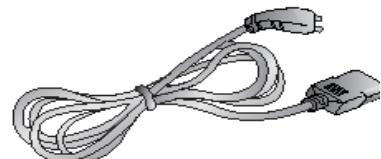
- 1) Resolution : 20.1 inch QSXGA (2560 x 2048)
- 2) Super wide viewing angle
- 3) OSD control
- 4) Portrait/Landscape display (pivot)
- 5) Digital Video Interface
- 6) Low Power Management



User's Manual



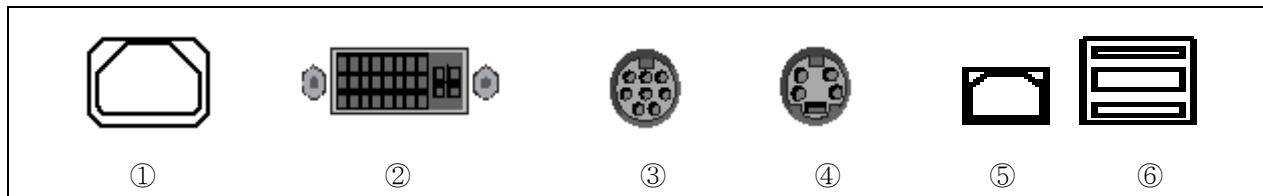
DVI-D Cable



Power Cord

## Setting up the LCD Monitor

### Connectors



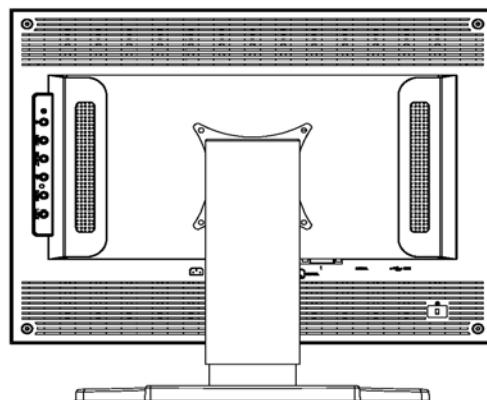
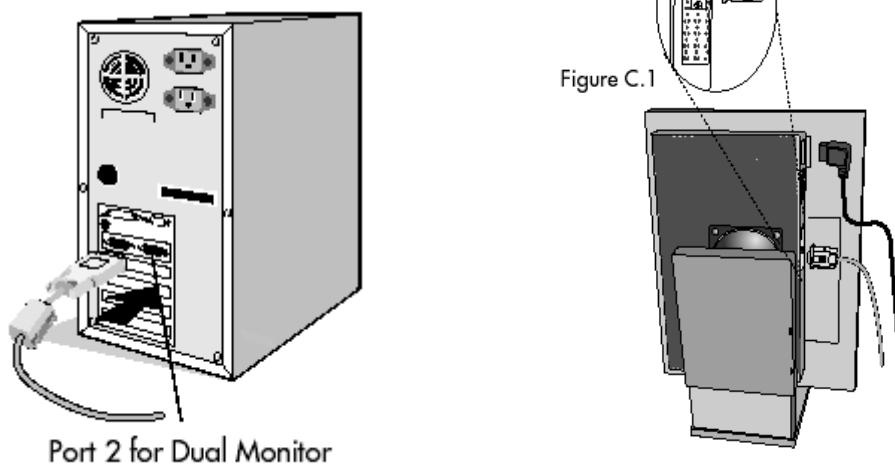
### Descriptions

No	Name	Cable Connections
①	AC Inlet	Connect the plug of AC power cord
②	DVI	Digital Video Interface connection from PC
③	RS-232C	Use for factory set-up and service purpose
④	RS-232C	Use for network system
⑤	USB(Up stream)	Connect the USB cable to PC
⑥	USB(Down stream)	Connect the USB cable to external equipments

## 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 another connector of the DVI-D signal cable on the rear side of the monitor.
- 3) Connect the power cord to the AC inlet on the rear side of the monitor
- 4) Try to collect the cable and power cord like the below pictures
- 5) Turn on the monitor with the power switch of the user control port.



## Adjusting the LCD Monitor

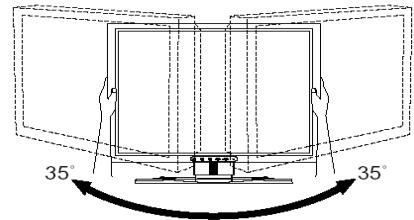
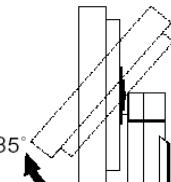
### Adjustment the height and the viewing angle

- 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.
- Hold the panel so that the monitor does not topple when you change the monitor's height or angle
- You are able to adjust the monitor's height up to 110mm, angle up to 35degrees right and left, 35 degrees upward

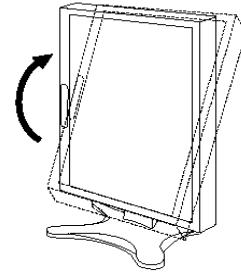
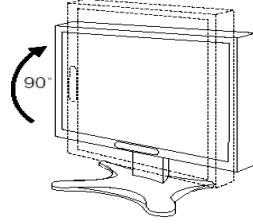
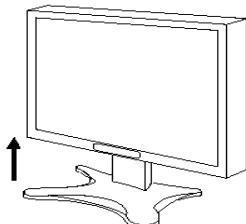
#### NOTE

- 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

#### PANEL ROTATION

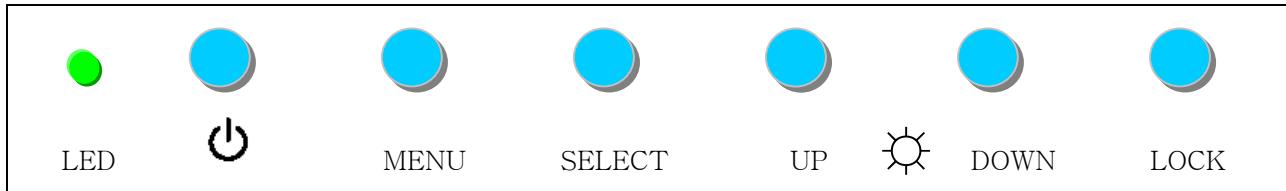


- Adjust the monitor's height to the maximum.
- Rotate the panel 90 degree
  - > Portrait : Turn clockwise.
  - >Landscape : Turn counter clockwise.



## Adjusting the LCD Monitor

### Adjustment OSD MENU contents



<b>LED</b>	Indicate Monitor power state by LED color
	Monitor Power on / off Switch
<b>MENU</b>	Launch OSD Menu, Select Screen Menu. OSD Display will be disappeared automatically.
<b>SELECT</b>	Select screen Menu.
	Brightness control
<b>UP</b>	Menu shift left, Increase Data Value of Selected item. Increase brightness in case of <b>Brightness Hot-Key</b> .
<b>DOWN</b>	Menu shift right, Decrease Data Value of Selected item. Decrease brightness step in case of <b>Brightness Hot-Key</b> .
<b>LOCK</b>	Press LOCK button for 7seconds, then other function is not operated Press LOCK button for 7seconds, then change to UNLOCK All function is usable.

 You can adjust brightness values that you want by this HOT KEY function

Press the UP button to increase the brightness.

Press the DOWN button to decrease the brightness.

### 2) OSD MENU ADJUSTMENT

Set the OSD menu display position

OSD position : Moves the OSD menu to the any direction

OSD TIME : Shows the OSD TIME displays from 5 to 30 sec.

### 3) DATA LEVEL

Select the gray scale level

8Bit : Select the 256 gray scale

10Bit : Select the 1021 gray scale

### 4) SET UP

Discards the current setting values

Recall : Replace the factory default values

5) LUMINANCE

SELECT brightness Calibration.

Adjust the Brightness automatically to the target luminance value

Before activating, connect the photo sensor between the front of screen and RS-232 port of LCD Monitor.

6) INFORMATION

Display the information of the monitor status, Maximum Resolution, Model Name, Time of using

## Appendix

### 24pin DVI 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		

### Power Saving Mode

This monitor has a built-in power management system called DPMS power Saving Mode.

This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain period of time. The available modes are "ON", "Standby", "Suspend", and "OFF".

Mode	LED Indicator	Power Dissipation
Normal Operation	Green	Normal Consumption
Power Saving mode	Amber	< 2 W
Off Mode	Off	< 2 W

## Appendix

# Specification

ITEM		MM50	MM30	MM20
PANEL	Size	20.1"	21.3"	21.3"
	Type	a-Si TFT active matrix	a-Si TFT active matrix	a-Si TFT active matrix
	Display size	399(H)x319(V)mm	433(H)x324(V)mm	432(H)x324(V)mm
	Brightness	850cd/m <sup>2</sup>	800cd/m <sup>2</sup>	800cd/m <sup>2</sup>
	Viewing Angle	170(H),170(V)	170(H),170(V)	170(H),170(V)
	Pixel Pitch	0.156mm x 0.156mm	0.2115mm x 0.2115mm	0.270mm x 0.270mm
	Contrast Ratio	600:1	700:1	700:1
Resolution	Landscape	2560 x 2048	2048 x 1536	1600 x 1200
	Portrait	2048 x 2560	1536 x 2048	1200 x 1600
Gradation Display		10bit(1021)grayscale from 3061 Pallet(11.5bit)		
Digital Interface		DVI-D Connector		
Serial Port		RS-232C		
USB Port		1Up stream ,2Down Stream		
User Control	Method	OSD Control		
	Button Function	Power, Menu, Select +, -, Lock		
Plug & Play		VESA DDC2B		
Power	AC Input	100-240Vac,50/60Hz		
	Consumption	75W	70W	70W
	Saving Mode	Less than 2W		
Regulation	Emission	FCC class B,CE,FDA510(k)		
	Safety	cUL(UL2601-1,CSA C22.22) CE(EN60601-1),MDD		
Vesa Wall/Arm Mounting		VESA-standard ,100 x 100 mm		
Mechanical Function		Height/Tilt/Pivot/Swivel		
Dimension(mm)		438(W)x458(H)x98(D)	472(W)x495(H)x92(D)	472(W)x495(H)x92(D)
Optional Item		Calibration Photo-sensor, Calibration software		
Enviromental	Operating	Temperature : 10°C to 40°C		
		Humidity : 10% to 80%		

## Appendix

### Troubleshooting

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
Screen is blank and power indicator light is steady red or blinks	The monitor is using its power management system. 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, Korea

Tel : 82-31-491-5506\_7/82-31-495-3121, Fax : 82-31-491-5509

[www.lumimed.com](http://www.lumimed.com), E-mail : lumimed@lumimed.com