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User's Manual
FP1960M
TFT–LCD Monitor

Table of Contents

Safety Instructions

⚠	**CAUTION** **RISK OF ELECTRIC SHOCK** **DO NOT OPEN**	⚡
AVERTISSEMENT RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		
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.		

CLASSIFIED
C ⓊL US

LCD MONITOR
54IJ
E217340
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 Marked "Hospital Only" or "Hospital Grade".

Explanation of Graphical Symbols

⚠ The exclamation point within an equilateral triangle is intended to alert the user to the presence of the important operating and maintenance (servicing) instructions in the literature accompaning the appliance.

⚡ The lighting 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).

⎓ Direct Current.

Warning : When the unit is used together with other equipment in the patient area, the equipment shall be connected according to Standard UL60601-1 and IEC60601-1.

Classification :
- Protection against electric shock: Class I including AC/DC Adapter.
- Applied Parts: No Applied Parts.
- Protection against harmful ingress of water: ordinary IPXO.
- 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.
- Mode of operation: Continuous.

Safety Instructions

Precautions

On Safety

1. Before connecting the AC power cord to the DC adapter outlet, make sure the voltage designation of the DC adapter corresponds to the local electrical supply.

2. Never insert anything metallic into the cabinet openings of the Liquid Crystal Display(LCD) monitor ; doing so may create the danger of electric shock.

3. To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Only a qualified technician should open the case of the LCD monitor.

4. Never use your LCD monitor if the power cord has been damaged. Do not allow anything to rest on the power cord, and keep the cord away from areas where people can trip over it.

5. Be sure to hold the plug, not the cord, when disconnecting the LCD monitor from an electric socket.

6. Unplug your LCD monitor when it is going to be left unused for an extended period of time.

7. Unplug your LCD monitor from the AC outlet before any service.

8. If your LCD monitor does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately am authorized dealer or service center.

WARNING   Do not touch signal input, signal output or other connectors, and the patient simultaneously.

WARNING   External equipment intended for connection to signal input, signal output or other connectors, shall comply with relevant IEC Standard (e.g.,IEC60950 for IT equipment and IEC60601-1 series for medical electrical equipment). In addition, all such combination-system-shall comply with the standard IEC60601-1 and/or IEC60601-1-1 harmonized national standard or the combination.
If, in doubt, contact qualified technician or your local representative.

Safety Instructions

This TFT LCD Monitor is as accessory intended for use with Medical Equipment to display alpha, numerical and graphical data.

On Installation

1. Openings in the LCD monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. Also avoid using the LCD monitor on a bed, sofa rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the LCD monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.

2. Put your LCD monitor in a location with low humidity and a minimum of dust.

3. Do not expose the LCD monitor to rain or use it near water (in kitchens, near swimming pools, etc.). If the LCD monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the LCD monitor with a damp cloth if necessary, but be sure to unplug the LCD monitor first.

4. Place your LCD monitor on a solid surface and treat it carefully.

5. Locate your LCD monitor near an easily accessible AC outlet.

6. High temperature can cause problems. Don't use your LCD monitor in direct sunlight and keep it away from heaters, stoves, fireplaces, and other sources of heat.

On Cleaning

The screen is made of thin glass with a plastic front surface and can be damaged if dropped, hit or scratched. Do not clean the front panel with keton-type materials (e.g., acetone), ethyl alcohol, toluene, ethyl acid, methyl, or chloride - these may damage the panel.

Panel   : Clean with a soft woolen or cotton towel. Use a watery solution or a mild commercial glass cleaning solution.

Cabinet : Clean with a soft cloth dampened with mild detergent and water. Repeat this with water only and wipe dry with a dry cloth.

On Repacking

Do not throw away the carton and packing materials. They make an ideal container which to transfer the unit. If you have any questions about this unit, contact your authorized dealer.

On Disposal

This unit contains which can pollute the environment if disposed carelessly. Please contact our nearest representative office or your local environmental office in case of disposal of this unit.

Your New LCD Monitor

Feature and Benefits

- Dual design - Digital Interface
  - Clear, sharp and crisp image

- Flexibility - Portrait/Landscape Display
  - Auto pivot and Auto Height-adjustable Stand (Optional)

- Superior Spec - High Luminance/High Contrast ratio
  - Wide viewing angle
  - Large Display Area(19.6")

Unpacking Your Monitor

When you unpack the LCD Monitor, make sure that you have items below.

Manual

Monitor

Warranty Card
(not available in all locations)

Power Cord

DC Adapter

DVI Signal Cable

USB-Cable

USB-Driver

Regulatory Information

FCC Information

User Instructions

The Federal Communications Commission Radio Frequency Interference Statement includes the following warning:

NOTE   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 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 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 technician for help.

User Information

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may find the booklet called How to Identify and Resolve Radio/TV Interference Problems helpful. This booklet was prepared by the Federal Communications Commission. It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4.

Warning User must use shielded signal interface cables to maintain FCC compliance for the product.

Regulatory Information

Declaration of conformity for products Marked with FCC Logo

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The party responsible for product compliance:

Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection, make sure the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor voltage rating.

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

For connection to a supply not in USA, make sure the power cord is the correct type that is required in your area.

IC Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

Setting up Your LCD Monitor

Connecting Your LCD Monitor
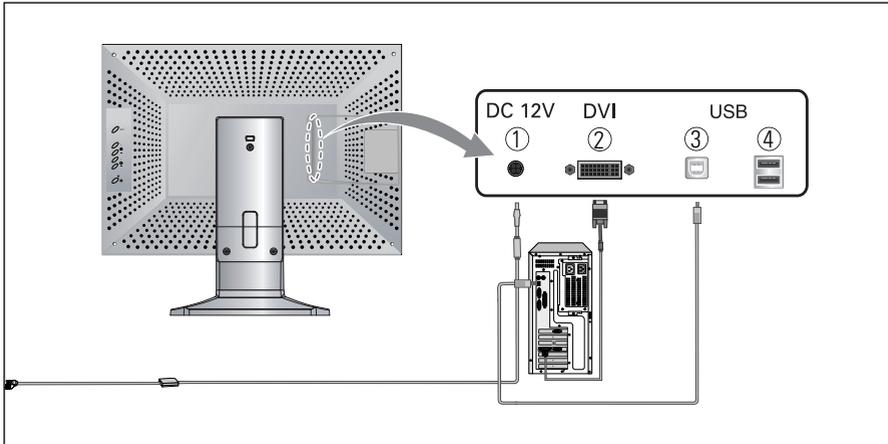
1. Power & Signal Input

1) Main Power Input : DC Power Input Jack from the AC to DC Adapter.

2) Digital Video Input : Digital Video Input connector (DVI) from the PC.

3) USB Connector - Up Stream.

4) USB Connector - Down Stream.

2. Connecting Cable

1) Connect the power cord to the DC adapter and connect the adapter plug to the DC12V power connector ① on the back of the monitor.

2) Connect the Digital video signal cable from PC to ②.

3) Turn the monitor on, and then turn the computer on.

4) Recommended resolution of FP1960M is SXGA, 1600 x 1200.

Option

If you want to use a USB port, Connect the USB cable from pc to ③.

Adjusting Your LCD Monitor

Main User Controls

Your LCD monitor allows you to easily adjust the characteristics of the image being displayed. All of these adjustments are made using the control buttons on the monitor. While you use these buttons to controls, an OSD shows you their change.

User Controls

Name/Symbol	Description
RESET	• Exit from menus. • Enter the utility (Service control only).
+ –	• Moves the highlight icon Down to the function that wants. • Moves the highlight icon Up to the function that wants.

+ ☼ –
Brightness
	• Adjust the overall light intensity of their images.
	   + : Increase the light intensity of image.
	   - : Decrease the light intensity of image.

⏻
Power/Indicator
	• Turns ON / OFF the monitor.
	• Indicates the status of the monitor.
	   - Green : Normal Operation.
	   - Red : Power Saving Mode or Disconnected Signal.

OSD Lock / Unlock

This function allows you to secure the current settings so that cannot be inadvertently changed.
You can unlock the OSD controls at any time by using the same procedure.
- Access the utility menu (Push and hold Reset button for at least 10 seconds).
- Access OSD Lock menu.
- Press the Reset button once and select Unlock or Lock menu.

Adjusting Your LCD Monitor

On Screen Display (OSD) Controls

Direct Access buttons

You can quickly and easily adjust the brightness by using the Direct Access buttons located.

Before adjusting the user controls, enter the utility and unlock the OSD lock.

Brightness

1. Press the ☼ " + " button to increase the brightness.
2. Press the ☼ " − " button to decrease the brightness.

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 warm (be on) for at least 20 minutes before making any screen adjustments.

Adjusting Your LCD Monitor

Utility (Service control only)

If you have a problem setting up utility functions of your LCD monitor, contact customer service.

On Screen Display

```
                    Utility
☞OSD  Lock
  Factory Reset
  SBC
  8bit / 10bit
  Language
  Information
  Exit
```
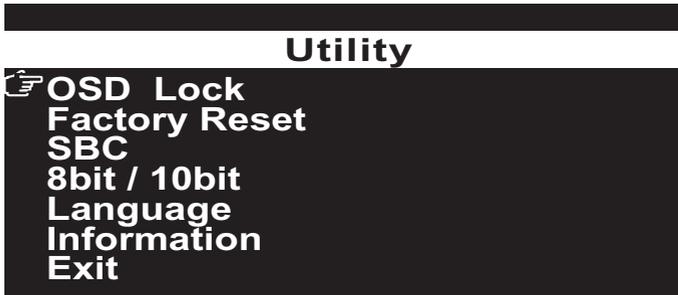
Accessing the menu system

1. With the menu off, press the RESET button for at least 10 seconds to display the utility Main menu.

2. Use the "− , + " buttons to move the function, and press the RESET button once to activate the selected function.

3. Use the "− , + " buttons to select the sub-menu, and press the Reset button once to activate the selected sub-menu.

4. To exit the OSD, wait for 5 seconds or more without making any adjustments or select the Exit from the utility main menu, and then press the RESET button.

Adjusting Your LCD Monitor

Utility function Controls

OSD Lock

OSD Lock	
Lock	**Unlock**
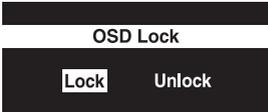
Lock the controls of the Brightness.
- Lock : Lock the Adjustment of the Brightness.
- Unlock : Unlock the Adjustment of the Brightness.

Factory Reset

Factory Reset	
Reset	**User**

Resets the Brightness Settings.
- Reset : Replace the factory default values.
- User : Does not make the adjustment.

SBC

SBC			
300 ·	**400** ·	**500** ·	**600**
	User	OFF	
SBCE		**00001H50M**	
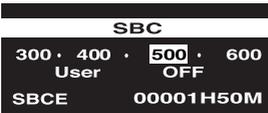
Performs SBC (Stable Brightness Control).
- Adjust the overall light intensity stable to the target luminance value.

Adjusting Your LCD Monitor

Utility function Controls

8bit / 10 bit

8bit / 10bit			
8bit	Input	Lut	Off
10bit	Input	Lut	Off
LUT1	On (DICOM)		
LUT2	On (Reverse)		
LUT3	On (User)		

Selects the LUT and gradation of gray scale.
- 8bit : Set the 256 gradation.
- 10bit : Set the 1021 gradation.
- LUT1 : Factory preset DICOM (at 500 cd/m^2).
- LUT2 : Factory preset Reverse LUT.
- LUT3 : User calibration purpose LUT.

Language

Language
English
Deutsch
Francaie
Espanol
Italiano

Selects the language of OSD.

Information

Information	
Power On Time	OOOOOHOOM
Power On / Off	OOOOO
Luminance	B : OOO L : OOO
Gradation	10bit
SBCE	OOOOOHOOM
Language	English
Temperature	+60°C / +135F

Shows the information of the current settings.
- Power on time.
- Number of Power on/off.
- Information of Dynamic Brightness.
- Setting of current gradation.
- Information of SBC.
- OSD Language.
- Temperature of the Inside.

Appendix

Specifications (Monitor main)

Electrical Specifications

Panel Specification	
Screen size	19.6 inch
Viewable image size	386.4(H) x 289.8(V) mm
Display resolution	1600 x 1200 pixels
Brightness	900 cd/m²
Contrast ratio	600:1
Viewing angle	85˚/ 85˚/ 85˚/ 85˚ (up/down/right/left)
Compatibility(Video Card)	
Single Portrait	1200 x 1600
Landscape	1600 x 1200
Dual Portrait	2400 x 1600
	1200 x 3200
Landscape	3200 x 1200
	1600 x 2400
Input Specification	
Input Signal	Digital 10 bit (Specific DVI)
Sync. type	Separate
	- Hsync : 75 KHz
	- Vsync : 60 Hz
	- Dot CLK : 162 MHz
Power Specification	
Power supply	Ault Inc., Model : MW116-KA-1249-F02
	Input : 100-240Vac, 1.0A, 50/60Hz
	Output : 12Vdc, 6.67A
Power consumption	Typical : 62 W
	DPMS : 6 W
Power management	EPA Energy Star / NUTEK

Appendix

Mechanical Specification and Regulatory

Mechanical Specification	
Dimension Portrait	(with stand) : 501 x 353 x 200 (mm)
Landscape	(with stand) : 451.5 x 452 x 200 (mm)
	(w/o stand) : 353 x 452 x 89 (mm)
Weights	(Unpacked) : 8.0kg
	(Packed) : 13.0kg
Environmental Consideration	
Operating	Temperature : 0°C to 40°C / 32°F to 104°F
	Humidity : 10% to 80%
Storage	Temperature : −20°C to 60°C / −40°F to 140°F
	Humidity : 5% to 95%
Regulatory	
Approvals	UL60601-1 / EN60601-1 / IEC60601-1
	FCC Class B
	CE
	VCCI
Features	
User controls	Power, Brightness
Mechanical	Tilt / Pivot function
	Portrait /Landscape display
Utility	OSD Lock
	Factory Reset
	SBC(Stable Brightness Control)
	8 bit /10 bit
	Language
	Information

Appendix

Power Management

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. Power Management system operates with a VESA DPMS compliant video card installed in your computer. You use a software utility installed on your computer to set up this feature.

Power Management Modes

State	Normal Operation	DPMS Standby	DPMS Suspend	DPMS Off
Horizontal Sync	Active	Inactive	Active	Inactive
Vertical Sync	Active	Active	Inactive	Inactive
Video	Active	Blanked	Blanked	Blanked
Power Indicator	Green	Red	Red Flashing (0.5 sec. interval)	Red Flashing (1 sec. interval)
Power Consumption	65W	Less than 6W	Less than 6W	Less than 6W

This monitor is EPA ENERGY STAR® compliant and NUTEK compliant when used with a computer equipped with VESA DPMS functionality.

For energy conservation, turn your monitor OFF when you are not using it or when leaving it unattended for long periods.

NOTE   This monitor automatically returns to normal operation when horizontal and vertical sync return. This occurs when you move the computer's mouse or press a key on the keyboard.

Appendix

Pin Assignments

DVI-D Connector

Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S Data 2–	13	No Connection
2	T.M.D.S Data 2+	14	5V Power
3	T.M.D.S Data 2 Shield	15	Ground (for 5V)
4	No Connection	16	Hot Plug Detect
5	No Connection	17	T.M.D.S Data 0–
6	DDC Clock	18	T.M.D.S Data 0+
7	DDC Data	19	T.M.D.S Data 0 Shield
8	No Connection	20	No Connection
9	T.M.D.S Data 1–	21	No Connection
10	T.M.D.S Data 1+	22	T.M.D.S Clock Shield
11	T.M.D.S Data 1 Shield	23	T.M.D.S Clock +
12	No Connection	24	T.M.D.S Clock –

Appendix

Troubleshooting

No picture
- Make sure that the power cord is completely connected. (See page 8.)
- Make sure that the LCD Monitor and computer power switch are on.
- Check the signal cable connector for bent or pushed-in pins.

The display image is too light or too dark.
- Adjust the Brightness. (See page 10.)

Screen is blank and power indicator light is steady red or blinks every 0.5 or 1 seconds.

- Make sure that the signal cable is completely connected to the display card or computer.
- Make sure that the display sources or computer are turned on. (See page 8.)
- The monitor is in the power management system.
- Press any key on the keyboard or move the computer's mouse.

Memo

Memo