FCC Information

This equipment has been tested and found to comply with 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 can generates, uses, and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful inteference to radio Communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause unacceptable interference to radio and 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 technician for help.

DECLARATION OF CONFORMITY

PRODUCT NAME : 17" COLOR MONITOR
MODEL NUMBER : 720NF
FCC RULES : TESTED TO COMPLY WITH FCC PART 15, CLASS B
OPERATING ENVIRONMENT : FOR HOME OR OFFICE USE
FCC COMPLIANCE STATEMENT :
This device complies with part 15 of 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
HANSOL MULTITECH, INC.
7001, VILLAGE DRIVE, SUITE 255, BUENA PARK, CA. 90621, USA
TEL : (714)562-5151

Introduction

Installation

Controls

Troubleshooting

Specifications

Appendix

English

Caution

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

Canadian Notice

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

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

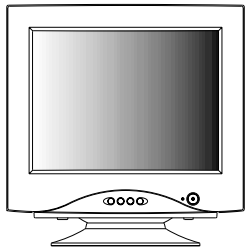
Notice

The information contained in this document is subject to change without notice.

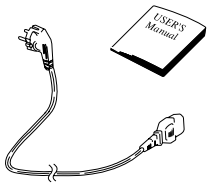
▣ Package

Congratulations on your purchase of this top quality color monitor!

The items illustrated below are contained in the carton.
First, be sure that your carton includes all of them.
If any items are missing or damaged, please contact your local dealer or supplier.



Display Monitor



AC Power Input Cable

▣ Safety information

- 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 ensure that 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 current rating.
  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 cord with NEMA configuration 6-15P type(tandem blades) plug cap.
- Use only a power source and connection appropriate for the monitor as indicated on the marking label.
- Slots and openings in the cabinet are provided for ventilation;
  these openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Never insert anything metallic into the monitor openings.
  Doing so may create a danger of electric shock.
- To avoid electric shock, never touch the inside of the monitor.
  Only a qualified technician should open the monitor's case.
- Unplug the monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp, lint-free cloth for cleaning.
- Install the monitor near an outlet that you can reach easily. Disconnect the product by grasping the plug firmly and pulling in from the outlet.
  Never disconnect it by pulling the cord.

▣ Features

Superior image

- On Screen menu fingertip control system to visually select and adjust screen using buttons on front panel and on screen menus.
- The exclusive double dynamic focus system with a hyperbolic focus compensation circuit controls the electron beams resulting in a fine image display over the entire area of the screen.
- Super contrast screen for superior contrast and richer color.
- Advanced INVAR Shadow mask for superior focus, brightness and color.
- 17", 0.25 Aperture grill pitch high resolution, non-interlaced technology provides sharp, flicker-free images.
- On screen menu color control system easily allows the white of the image to be adjusted as well as R.G.B signals, resulting in true-to-life colors.

Ergonomic Design

- Flat, square screen to reduce image distortion and glare, thus relieving eye strain.
- Tilt base allowing 90° rotation in the horizontal and 17° in the vertical for greater user comfort.
- Low-leak radiation prevention meeting MPR Ⅱ and the very stringent TCO (option) magnetic field emissions standards for increased user safety.

Environmentally Friendly

- Power management circuit conforming to VESA DPMS standards controls energy consumption when monitor is not in use, you save energy.
- All plastic parts are recyclable. All materials are strictly selected to ensure ease of maintenance, inspection and disposal.

Timing

- Automatic tracking of horizontal frequencies of 30 to 95 kHz,and vertical frequencies of 47 to 160 Hz.
- Thirteen timings are factory preset for image size and position
- Ten additional timings are user definable.
- Synchronizing separate input signal.

System Flexibility

- Equipped with DDC1, DDC2B and DDC2Bi for Plug & Play compatibility.
- Monitor is compatible with VGA, SVGA, VESA and high resolution video modes up to 1600(H) × 1200(V) @ 75Hz
- Monitor may be used with IBM or compatible PC, MAC.
- Automatic universal power supply is built in permitting AC power input of 100 - 240V AC, 50 or 60Hz.
- Self-test menu allows the display unit to be checked on screen without connecting to a computer.
- Compact case minimizes desktop space giving you a large screen image without loss of workspace.
- Power cable included easily plugs into a standard outlet.

▣ Power management system

This monitor complies with VESA, Nutek, and Energy Star power saving requirements. The power saving system works only when used with VESA DPMS compliant PC's and/or graphic controllers.

State	LED	Power	Recovery Time
On	Green	Normal (100 Watts)	N/A
Stand by	Green	< 65 Watts	< 2 Sec
Suspend	Amber	< 15 Watts	< 5 Sec
Off	Amber/Blink	< 5 Watts	< 15 Sec

The monitor goes into various power saving stages depending on the incoming video signal as shown in the following table

State	Horizontal Sync	Vertical Sync
On	On	On
Stand by	Off	On
Suspend	On	Off
Off	Off	Off

Note

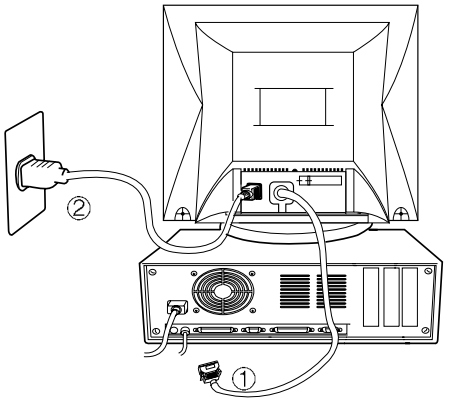
The monitor automatically goes through the DPMS steps when it is idle.

To release the monitor from the DPMS condition, press any key on the keyboard or mouse.

▣ Connection to your computer

⚠ **CAUTION**

Ensure that both the PC and the display monitor are switched off.



To attach the monitor to your system, as shown in the following illustrations.

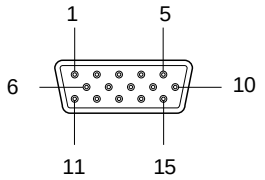
1. Insert the AC power cord ② into monitor and then into an AC power outlet.
2. Connect the signal cable ① to the 15pin graphics connector of the system and tighten the fastening screws.
3. To turn on the monitor, push the power switch.

Note : To attach the monitor to the Macintosh system, please contact an authorized dealer.(Need to use a special adaptor)

▣ Pin assignment table D-Sub Mini 15pin connector

Pin No.	Assignment
1	Red Video
2	Green Video
3	Blue Video
4	Frame Ground
5	Ground
6	Red Video Ground
7	Green Video Ground
8	Blue Video Ground
9	N.C
10	Sync. Ground
11	Ground
12	SDA
13	H-Sync.
14	V-Sync.
15	SCL

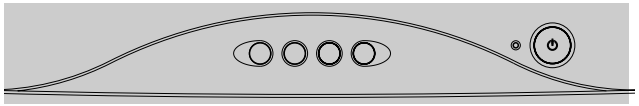
The 15-pin D-Sub connector (male) of the signal cable (IBM Systems) :



(15 Pin D-Sub)

▣ OSD controls

"ON SCREEN MENU" controls include the following extended controls such as Size, Position, Geometry, Color Adjust, Brightness and Contrast Utilities. Adjustments are saved instantly. The currently addressed control can be reset to factory settings by pressing the Reset button.



Function of OSD buttons on the front of the monitor

- ■ ↵ : In the main menu, exits the OSD controls. In a submenu, exits to the OSD main menu.
- ■ −/+
  1) When no OSD on the Screen,
  − : Direct access to Brightness controls.
  + : Direct access to Contrast controls.
  2) When Main menu is displayed. : Moves to function what you want to adjust.
  3) When the Sub menu is displayed. : Controls the amount what you want to adjust.
- ■ MENU : Displays OSD main Menu.
  1) When Main menu is displayed. : Selects function with RED ICON.
  2) When Sub menu is displayed. : Selects function with RED ICON.

Additional front controls

- ■ Power Switch : Turns the monitor power on or off. When the power is on, the LED is on.
- ■ LED Power indicator Light : Located left side of the power switch and indicates the monitor's power mode. Each mode reduces the amount of power used by the monitor.

Accessing on screen menu

Press MENU Button.

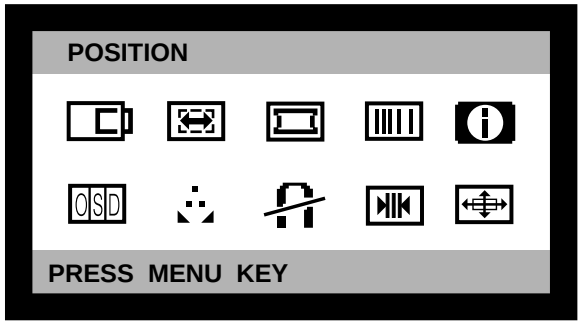
Turning off on screen menu

When in the main menu, press ↵ button.
When in submenus, press ↵ button twice.

▣ OSD Menu

Main Menu

OSD main menu allows you to adjust user controls.

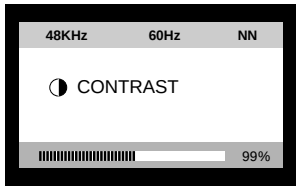


Use the − / + : Control buttons to scroll through all of the menus.

Main Menu control guide

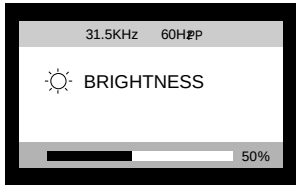
- ■ ↵ : Exits the OSD controls.
- ■ − / + : Move the function to choose.
- ■ ◯ : Proceed to the selected menu.

Contrast Menu



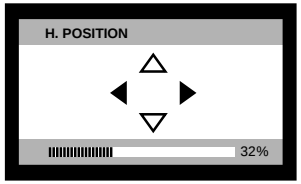
- ■ + : Exits the Contrast menu.
- ■ − / + : Increase or decrease the Contrast.

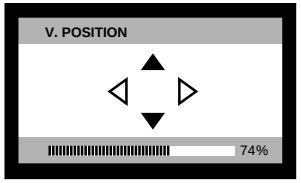
Brightness Menu



- ■ − : Exits the Brightness menu.
- ■ − / + : Increase or decrease the Brightness .

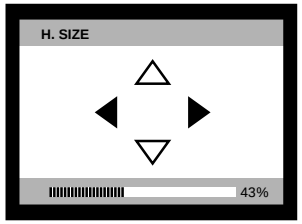
Position Menu

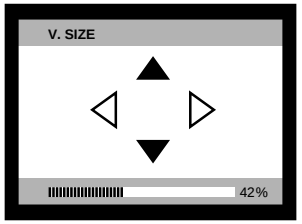




- After choosing , Push MENU(◯) button.
- MEUN(◯) : Push this button again & again to change the H/V-position.
- − : Moves the image vertically up or down.
- + : Moves the image horizontally left or right.

Size Menu



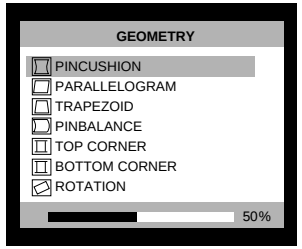


- After choosing , Push MENU(◯) button.
- MENU (◯) : Push this botton again & agiain to change the H/V-size.
- − : Increases or Decreases the vertical size of the image.
- + : Decreases or Increases the horizontal size of the image.

Position and size Menu control guide

- : Exit to the main menu.
- − / + : Refer to − /+
- MENU(◯) : Toggle position and menu directly.

Geometry Menu



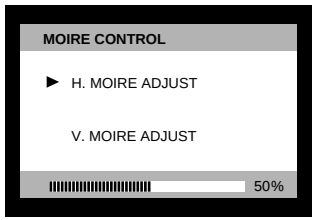
The Geometry controls allow you to adjust the curvature or angle of displayed image.

- Atfer choosing , push MENU(◯) button.
- Pincushion : Increase or decrease the curvature of the sides either inward or outward.
- Parallelogram : Increase or decrease the tilt of the sides either to the left or right.
- Trapezoid : Increase or decreases the bottom of the screen to be the same as the top.
- Pin Balance : Increase or decrease the curvature of the sides.
- Top Corner : Increase or decreases the curvature of the top sides.
- Bottom Corner : Increase or decrease the curvature of the bottom sides.
- Rotation : Rotate the entire display to clockwise or counterclockwise.

Geometry Menu control guide

- : Exit to the main menu.
- − / + : Move the function to choose.
- MENU(◯) : Function to choose.
- − / + : Move the bow in the − or + direction to increase or decrease the adjustment.

Moire Menu

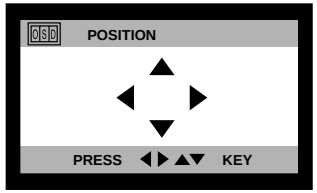


- After choosing , Push MENU(◯) button.
- Select ON or OFF with − / + key.
- Select H.MOIRE or V.MOIRE with − /+ key.
- − / + : Adjust the Moire.

Language Menu

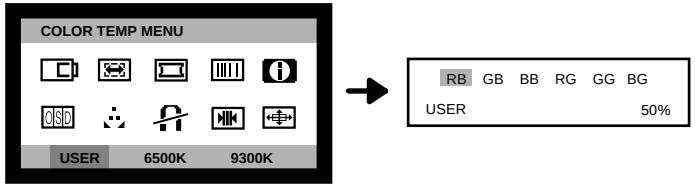
- After choosing , Push MENU(◯)button.
- − / + : Select the language.

OSD Position Menu



- After choosing , Push MENU(◯)button.
- MENU (◯): Push this button again & again to change the H/V-position.
- − : Move the OSD menu Vertical bottom or Horizontal left.
- + : Move the OSD menu Vertical top or Horizontal right.

Color Temp Menu



※Presetting : Select the desired color setting. The bar is replaced by the color setting choice.
" USER, 6500K, 9300K "
Color adjustment is available only in USER mode.

- − / + : Move the bar with − or + key to select the user
- MENU(○) : Press MENU button for 5 seconds.
- − / + : Increcse or decrease the selected coldr adjustment.
- ↵(Exit) : Exit to the main menu.

▣ No picture

- Check that the AC cord is correctly connected.
- Check that the AC socket is live by plugging in another piece of equipment.
- Power switch and computer power switch should be in position.
- Ensure that the signal cable is properly connected to the video card or PC.
- Ensure that the video card is securely seated in the PC.
- Check the connector for bent or pushed-in pins.
- Press a key on the keyboard or move the mouse, in case the screen power-saver mode has blanked the screen.

▣ Image is scrolling or unstable

- Signal cable should be securely attached to the computer.
- Check the pin assignments and signal timings of the monitor and your video card with respect to recommended timings and pin assignments.
- Ensure that the video card is securely seated in the PC.

▣ Picture is fuzzy

- Adjust the Contrast and Brightness Controls.
- Push the Degauss Button once.

Caution : A minimum interval of 20 minutes should exist before the Degauss Button is used a second time. Do not hold the button down continuously.

▣ Picture bounces or a waving pattern is present in the picture

- Move electrical devices that may be causing electrical interference away from the monitor.
- See the inside front cover of this manual for FCC information.
- Unshielded audio speakers placed next to the monitor can cause picture distortion. Move the speakers away.

▣ Edges of the display image are not square

- Adjust the distortion using the Side Pincushion or Trapezoid Pincushion Balance, Parallel adjustment controls under the on screen menu.

▣ Display image is not centered, too small, or too large

- Adjust the horizontal and vertical image sizes using the Horizontal and Vertical Size adjustment controls under the on screen menu.

▣ Electrical Specifications

ITEM		720NF
CRT Type		17″, 90° deflection FST
CRT Aperture grill pitch		0.25mm
CRT Surface		Non-glare
Input Signal	Sync	H/V Separate, TTL, positive/negative H/V Composite, TTL, positive/negative
	Video	RGB Analog (0.7Vp-p), positive 75Ω Terminated
Scanning frequency	Horizontal	30kHz~95kHz (Automatically)
	Vertical	47Hz~160Hz (Automatically)
Maximum Resolution		1600Dots×1200Lines (Non-interlace)
Pixel Clock (Max.)		205 MHz
Display Size (Standard)		Horizontal 306mm, Vertical 230mm
Power Consumption (Max.)		120 Watts
Power Supply		AC 100~240Volt, 50/60Hz ±3Hz
Input Connector		D-Sub, 15Pin Connectors
Display Colors		Unlimited

▣ Mechanical Specifications

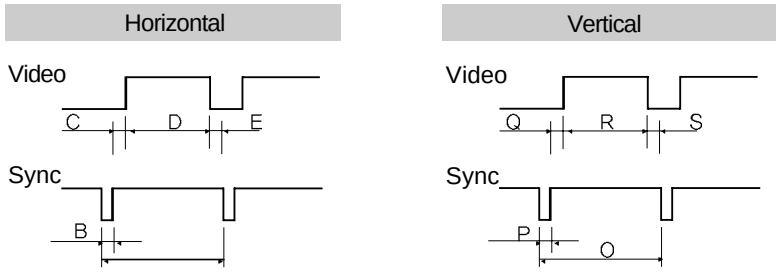
ITEM		720NF
Dimension	Unit	16.3″(W)×17.0″(D)×16.6″(H) 415mm(W)×433mm(D)×422mm(H)
	Carton	20.9″(W)×21.9″(D)×21.3″(H) 530mm(W)×555mm(D)×540mm(H)
Weight	Net	37.5lbs (17.0Kg)
	Gross	44.8lbs (20.3Kg)

▣ Environmental Specifications

ITEM		720NF
Temperature	Operating	32°F to 104°F (0°C to 40°C)
	Storage	-4°F to 140°F (-20°C to 60°C)
Humidity		10% to 85% R.H. Non-condensing

▣ Preset Timings

This Monitor 720NF has preset modes for the 13 most popular industry standards for "Plug and Play" capability.



Resolution / Timing	IBM		VESA			
	VGA/70Hz	VGA/60Hz	640/85Hz	800/75Hz	800/85Hz	1024/75Hz
	720×400	640×480	640×480	800×600	800×600	1024×768
H-Freq(kHz)	31.469	31.469	43.269	46.875	53.674	60.023
Aμsec	31.777	31.777	23.111	21.333	18.631	16.660
Bμsec	3.813	3.813	1.556	1.616	1.138	1.219
Cμsec	1.907	1.907	2.222	3.232	2.702	2.235
Dμsec	25.422	25.422	17.778	16.162	14.222	13.003
Eμsec	0.636	0.636	1.556	0.323	0.569	0.203
V-Freq(Hz)	70.09	59.94	85.008	75	85.061	75.029
Omsec	14.268	16.684	11.764	13.333	11.756	13.328
Pmsec	0.064	0.064	0.069	0.064	0.056	0.050
Qmsec	1.08	1.048	0.578	0.448	0.503	0.466
Rmsec	12.711	15.253	11.093	12.8	11.179	12.795
Smsec	0.413	0.318	0.023	0.021	0.019	0.017
Pixel rate(MHz)	28.322	25.175	36	49.5	56.25	78.750
H-Polarity	Negative	Negative	Negative	Positive	Positive	Positive
V-Polarity	Positive	Negative	Negative	Positive	Positive	Positive

Resolution / Timing	VESA				MACINTOSH		
	1024/85Hz	1280/75Hz	1280/85Hz	1600/75Hz	640/67Hz	832/75Hz	1152/75Hz
	1024×768	1280×1024	1280×1024	1600×1200	640×480	832×624	1152×870
H-Freq(kHz)	68.677	79.976	91.146	93.75	35	49.726	68.681
Aμsec	14.561	12.504	10.971	10.667	28.571	20.11	14.560
Bμsec	1.016	1.067	1.016	0.948	2.116	1.117	1.280
Cμsec	2.201	1.837	1.422	1.501	3.175	3.91	1.440
Dμsec	10.836	9.481	8.127	7.901	21.164	14.524	11.520
Eμsec	0.508	0.119	0.406	0.316	2.116	0.559	0.320
V-Freq(Hz)	84.997	75.025	85.024	75	66.667	74.551	75.062
Omsec	11.765	13.329	11.761	13.333	15	13.414	13.322
Pmsec	0.044	0.038	0.033	0.032	0.086	0.06	0.044
Qmsec	0.524	0.475	0.579	0.491	1.114	0.784	0.568
Rmsec	11.183	12.804	11.235	12.8	13.714	12.549	12.667
Smsec	0.015	0.013	0.011	0.011	0.086	0.02	0.044
Pixel rate(MHz)	94.5	135	157.5	202.5	30.24	57.284	100
H-Polarity	Positive	Positive	Positive	Positive	Negative	Negative	Negative
V-Polarity	Positive	Positive	Positive	Positive	Negative	Negative	Negative