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 generates, uses, and can 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.

FCC ID : MSA 106055

PRODUCT NAME : 19" COLOR MONITOR
MODEL NUMBER : 106055
FCC RULES : TESTED TO COMPLY WITH FCC PART 15, CLASS B
OPERATING ENVIRONMENT : FOR HOME OR OFFICE USE

.

THE PARTY RESPONSIBLE FOR PRODUCT COMPLIANCE
HANSOL MULTITECH, INC.
7001, VILLAGE DRIVE, SUITE 255, BUENA PARK, CA. 90621, USA
TEL : (714)562-5151

English

Caution

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

Warning

If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Canadian Notice

This Class B digital apparatus meets all requirements of the Cannadian 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

First, we would like to thank you for your purchase of this monitor. This monitor is 19inch, high resolution, color display monitor. This manual covers the use, and points of caution, when operating this monitor.
Please take the time to read this manual so that you will obtain the best performance and most use from your monitor. After reading the manual, store it in a safe place for future reference.

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

■ 106055
- Color Monitor
- AC Power input cable
- User's Manual (Warranty Registration Card)
- Signal Cable (15pin 3layer D-sub)

■ Features

■ 19-inch(18 inch visual)high performance display color monitor

■ Automatically scans frequencies from
 - Horizontal frequency: 30 to 96KHz
 - Vertical frequency: 47 to 160Hz

■ Compatible with VGA, SVGA, VESA, MAC Standards and maximum resolution modes up to 1600 ×1200 and BNC cable is optional.

■ Supports VESA flicker free modes including 85Hz refresh rate.

■ On Screen menu fingertip control system to visually select and adjust screen images using Encode S/W on front panel and on screen menus.

■ Power supply operates on AC100~240Volt 60/50Hz for use all over the world.

■ Equipped with DDC 1/2B for Plug & Play capability.

■ Equipped with an energy-saving feature.
Power management circuit signaled by the computer system, will reduce power consumption when the computer system is not in use.

■ Monitors with nonglare/antistatic screens are compliant with MPR 1990 Emissions standards and meets requirements for CE Marking.
 ※ TCO : (option)

■ **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.

■ **Power management system**

This monitor meets VESA(Video Electronics Standards Association) DPMS(Display Power
Management Signalling)standards. In order for the monitor's power saving feature to function,
the video board or computer must also meet VESA$^{®}$ DPMS^{TM} standards.

■ Power management table

Sync \ State	Normal Operation	Power saving function mode		
		Standby	Suspend Mode	Power-Off Mode
Horizontal	Active	Inactive	Active	Inactive
Vertical	Active	Active	Inactive	Inactive
Video	Active	Blanked	Blanked	Blanked
LED Color	Green	Green/AMBER	AMBER	AMBER Blinking
Power Consumption	110W	Less than 80% of MAX	Less than 15W	Less than 5W

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.

■ **Connection to your computer**

⚠ **CAUTION**
Ensure that both the PC and the display monitor are switched off.
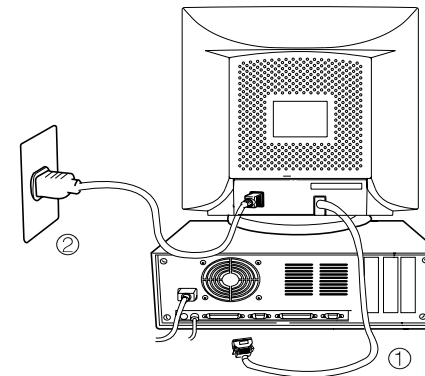
To attach the monitor to your system, as shown in
the following illustrations.

1. Connect the signal cable ① to the 15pin
graphics connector of the system and tighten
the fastening screws.

2. Insert the AC power cord ② into monitor and
then into an AC power outlet.

3. To turn on the monitor, push the power switch.

Note : To attach the monitor to the Macintosh system, please contact the signal cable ① to the
2layer 15pin graphics connector of the system. (※ The connecting direction of signal
cable is opposite to the IBM compatible system)

■ **Pin assignment table D-Sub Mini 15pin connector**

Pin No.	Assignment
1	Red Video
2	Green Video
3	Blue Video
4	Frame Ground (brown)
5	Ground (blue)
6	Red Video Ground
7	Green Video Ground
8	Blue Video Ground
9	N.C
10	ID (green)
11	N.C
12	SDA (orange)
13	H-Sync (black)
14	V-Sync (yellow)
15	SCL (red)

The 15-Pin D-sub connector (male)
of the signal cable (IBM Systems)

(15 Pin D-Sub)
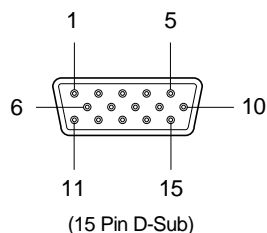
■ **Function of controls**

OSD Controls

The OSD apears on the screen when you press MENU (○) button.

"ON SCREEN MENU" controls include the following extended controls such as Size, Position, Geometry Distortion, Color temp, Degauss, Moire on & off, Language, OSD-Position, Recall, Cont & Brt, etc.
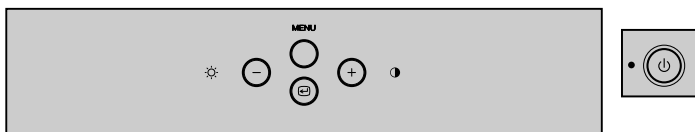
Function of OSD buttons on the front of the monitor

Additional front controls
※ Power Switch : Turn the monitor power on or off, When the power is on, the LED is lit.

Accessing OSD
■ Press MENU(○) Button.
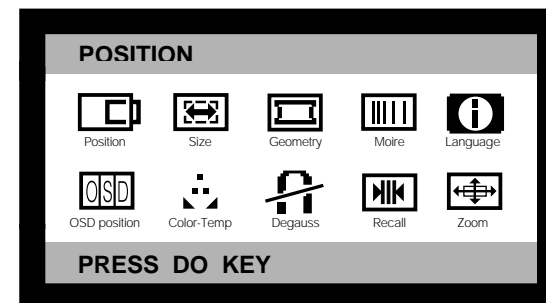■ − : Direct Brightness access.
■ + : Direct Contrast access.

EXIT from OSD
■ ⏎ : Press this (⏎) button in the main menu and submenu.

■ **OSD Menus**

Main Menu

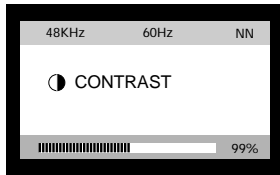OSD main menu allows you to adjust user controls.

Use the − / + : Control buttons to scroll through all of the menus.
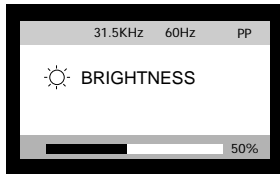
Main Menu control guide
■ ⏎ : Exits the OSD controls.
■ − / + : Move the function to choose.
■ ○ : Proceed to the selected menu.

Contrast Menu

```
48KHz        60Hz         NN

◑ CONTRAST

|||||||||||||||||||||        99%
```
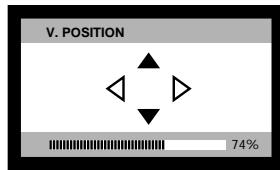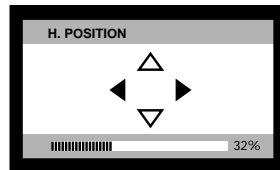
- + : Exits the Contrast menu.
- − / + : Increase or decrease the Contrast.

Brightness Menu

```
31.5KHz    60Hz      PP

☼ BRIGHTNESS

||||||||||||            50%
```
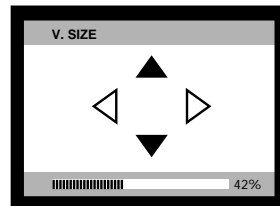
- − : Exits the Brightness menu.
- − / + : Increase or decrease the Brightness .

Position Menu

```
H. POSITION

    △
◀       ▶
    ▽

||||||||||||           32%
```

```
V. POSITION

    ▲
◁       ▷
    ▼

|||||||||||||||||||       74%
```

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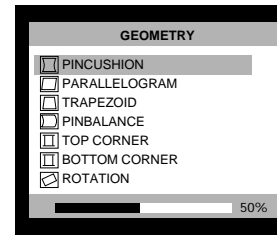- + : Moves the image horizontally left or right.

Size Menu

```
H. SIZE

    △
◀       ▶
    ▽

|||||||||||||          43%
```

```
V. SIZE

    ▲
◁       ▷
    ▼

||||||||||||          42%
```
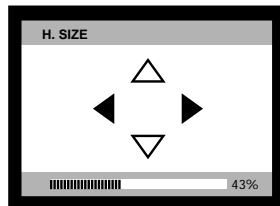
- After choosing ▦ , Push MENU(○) button.
- MENU (○) : Push this botton again & agiain to change the H/V-size.
- − : Increases or Decreases the vertical size of the image.
- + : Decreases or Increases the horizontal size of the image.

Position and size Menu control guide

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

Geometry Menu

```
GEOMETRY

▭ PINCUSHION
▭ PARALLELOGRAM
▭ TRAPEZOID
▯ PINBALANCE
▥ TOP CORNER
▤ BOTTOM CORNER
▱ ROTATION

||||||||||          50%
```

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

```
MOIRE CONTROL

▶ H. MOIRE ADJUST

  V. MOIRE ADJUST

|||||||||||||||||        50%
```
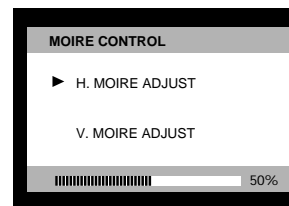
- After choosing ▥ , Push MENU(○) button.
- Select ON or OFF with − / + key.
- Select H.MOIRE or V.MOIRE with − / + key.
- − / + : Adjust the Moire.

Language Menu

```
LANGUAGE
☞  ENGLISH
    DEUTSCH
    FRANCAIS
    ESPAÑOL
    PORTUGUÊS
    PRESS DO KEY
```

■ After choosing 🛈 , Push MENU(○)button.

■ − / + : Select the language.

OSD Position Menu

```
OSD   POSITION
         ▲
    ◄         ►
         ▼
    PRESS ◄►▲▼  KEY
```

■ After choosing OSD, Push MENU(○)button.

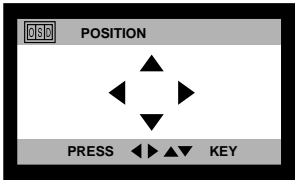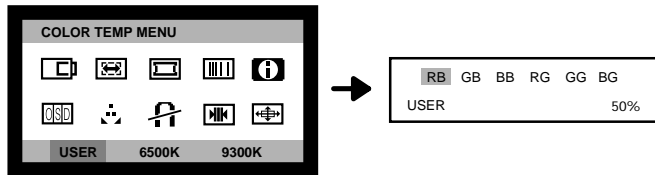■ MENU (○): Push this button again & again to change the H/V-position.

■ − : Move the OSD menu Vertical bottom or Horizontal left.

■ + : Move the OSD menu Vertical top or Horizontal right.

Color Temp Menu

```
COLOR TEMP MENU
🖵  🖶  🖵  ▥  🛈
OSD  ⁝  🔧  ▥  ⊞
    USER   6500K   9300K
```

→

```
RB  GB  BB  RG  GG  BG
USER                50%
```

※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 to the main menu.

■ **Troubleshooting guide**

If your monitor is not performing properly, please use the following troubleshooting chart for quick solutions to common problems.

Problem	Possible cause	Remedy
No Picture	Is the power cord connected?	Connect power cord.
	Is the power switch on?	Turn on power switch.
	Is the signal cable properly connected?	Connect signal cable properly
	Is the monitor in the power save mode?	Press any key on the keyboard or move the mouse.
Picture is unstable	Is the signal cable properly connected?	Connect signal cable properly
	Are there signals, which are outside of the required frequency range?	Input signals which are within the range of the monitor.
	Is the signal connector pin assigments correct?	Use correct signal connector.
The display image is not centered, too small or large.	Are there signals, which are outside of the required frequency range?	Use correct signal which within the frequency range of the monitor(If the signal is correct, adjust the controls to desired image.)
The color of image on screen is abnormal.	Is the magnetic object nearby?	Move object far away.
	Is the pin arrangement of the signal connector correct?	Use correct signal cable. Use degauss control.

ENGLISH

◼ Electrical Specifications

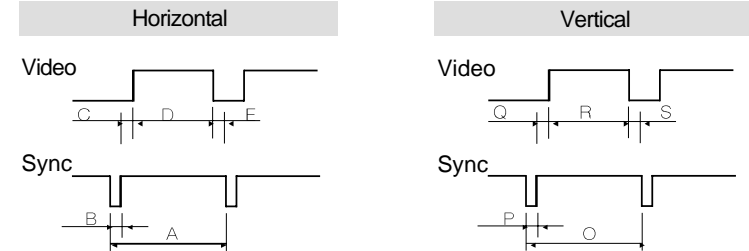| ITEM		106055
CRT Type		19″, 90° deflection
CRT Dot pitch		0.25mm (0.20 in Hor.)
CRT Surface		Non-glare, ARASC
Input Signal	Sync	H/V Separate, TTL, positive/negative
		H/V Composite, TTL, positive/negative
	Video	RGB Analog (0.7Vp-p), positive
		75 Ω Terminated
Scanning frequency	Horizontal	30KHz~96KHz (Automatically)
	Vertical	47Hz~160Hz (Automatically)
Maximum Resolution		1600Dots ×1200Lines (Non-interlace)
Pixel Clock(Max.)		210 MHz
Display Size (Standard)		Horizontal 350mm, Vertical 262mm
Power Consumption		110 W
Power Supply		AC 100~240Volt 60/50Hz ±3Hz
Input Connector		D-Sub, 15Pin Connectors (3layer)
Display Colors		Unlimited

◼ Mechanical Specifications

ITEM		106055
Dimension	Unit	18.5″(W) ×18.4″(D) ×18.3″(H)
		470mm(W) ×466.5mm(D) ×466mm(H)
	Carton	21.1″(W) ×24.4″(D) ×22.2″(H)
		537mm(W) ×620mm(D) ×564mm(H)
Weight	Net	23.3Kg (51.3lbs)
	Gross	26.9Kg (52.2lbs)

◼ Environmental Specifications

ITEM		106055
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 D19AL has preset modes for the 14 most popular industry standards for "Plug and Play" capability.

Horizontal	Vertical

Resolution	IBM		VESA				
	VGA/70Hz	VGA/60Hz	640/75Hz	640/85Hz	800/75Hz	800/85Hz	1024/75Hz
Timing	720 ×400	640 ×480	640 ×480	640 ×480	800 ×600	800 ×600	1024 ×768
H-Freq	31.469	31.469	37.5	43.269	46.875	53.674	60.023
A μsec	31.777	31.777	26.667	23.111	21.333	18.631	16.660
B μsec	3.813	3.813	2.032	1.556	1.616	1.138	1.219
C μsec	1.907	1.907	3.81	2.222	3.232	2.702	2.235
D μsec	25.422	25.422	20.317	17.778	16.162	14.222	13.003
E μsec	0.636	0.636	0.508	1.556	0.323	0.569	0.203
V-Freq	70.09	59.94	75	85.008	75	85.061	75.029
Omsec	14.268	16.684	13.333	11.764	13.333	11.756	13.328
Pmsec	0.064	0.064	0.08	0.069	0.064	0.056	0.050
Qmsec	1.08	1.048	0.427	0.578	0.448	0.503	0.466
Rmsec	12.711	15.253	12.8	11.093	12.8	11.179	12.795
Smsec	0.413	0.318	0.027	0.023	0.021	0.019	0.017
Pixel rate	28.322	25.175	31.500	36	49.5	56.25	78.750
H-Polarity	Negative	Negative	Negative	Negative	Positive	Positive	Positive
V-Polarity	Positive	Negative	Negative	Negative	Positive	Positive	Positive

Resolution	VESA				MACINTOSH		
	1024/85Hz	1280/75Hz	1280/85Hz	1600/75Hz	640/67Hz	832/75Hz	1152/75Hz
Timing	1024 ×768	1280 ×1024	1280 ×1024	1600 ×1200	640 ×480	832 ×624	1152 ×870
H-Freq	68.677	79.976	91.146	93.75	35	49.726	68.681
A μsec	14.561	12.504	10.971	10.667	28.571	20.11	14.560
B μsec	1.016	1.067	1.016	0.948	2.116	1.117	1.280
C μsec	2.201	1.837	1.422	1.501	3.175	3.91	1.440
D μsec	10.836	9.481	8.127	7.901	21.164	14.524	11.520
E μsec	0.508	0.119	0.406	0.316	2.116	0.559	0.320
V-Freq	84.997	75.025	85.024	75.000	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	12.800	13.714	12.549	12.667
Smsec	0.015	0.013	0.011	0.011	0.086	0.02	0.044
Pixel rate	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