Digital Control
Multiscan Color Green
Monitor

User's Guide

S-996E

3H0S5N04N6

FCC ID : HSUTRLS-996

IMPORTANT SAFETY
INFORMATION

- Read all of these instructions carefully, and save them for reference. Follow all warnings and instructions marked on the product.

- Clip the swivel base on to the monitor before installation.

- Unplug the monitor from the system unit before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

- Use only attachments recommended by the manufacturer; unapproved attachments may be hazardous.

- Do not use the monitor near water, for example near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

- Do not place the monitor on an unstable cart, stand or table. If the monitor falls, it could injure a person or cause serious damage to the appliance. Use only a cart or stand recommended by the manufacturer or sold with the monitor. If you mount the monitor on a wall or shelf, use a mounting kit approved by the manufacturer and follow the kit instructions.

- Slots and openings in the back and bottom of the cabinet are provided for ventilation. To ensure reliable operation of the monitor and to protect it from overheating, be sure these openings are not blocked or covered. Do not place the monitor on a bed, sofa, rug, or similar surface. Do not place the monitor near or over a radiator or heat register. Do not place the monitor in a bookcase or cabinet unless proper ventilation is provided.

- The monitor should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.

- The monitor is equipped with a three-wire grounded plug, a plug with a third (grounding) pin. This plug will fit only into a grounded power outlet. This is a safety feature. If your outlet does not accommodate the three-wire plug, have an electrician install the correct outlet, or use an adapter to ground the appliance safely. Do not defeat the safety purpose of the grounded plug.

- Do not allow anything to rest on the power cord. Do not locate the monitor where people may walk on the cord.

- To protect the monitor during a lightening storm or when it is left unattended and unused for long periods of time, unplug it from the system unit. This will prevent damage to the monitor from lightening and power surges.

- Do not overload power outlet and extension cords. Overload can result in fire or electric shock.

- Never push any object into the slot in the monitor cabinet. It could touch dangerous voltage points or short out parts resulting in a fire or electric shock. Never spill liquid on the monitor.

- If your monitor don't operate normally, in particular if any unusual sounds or smells come from it, immediately unplug it and contact an authorized technician.

- Do not attempt to service the monitor yourself; openings or removing covers can expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

- Unplug the monitor from the system unit and refer servicing to qualified service personnel under the following conditions:
  - When the power cord or plug is damaged or frayed.
  - If liquid has been spilled into the monitor.
  - If the monitor has been exposed to rain or water.
  - If the monitor does not operate normally and you are following the operating instructions. Adjust only those controls covered by the operating instructions; improper adjustment of other controls may result in damage and may require extensive work by a qualified technician to restore the monitor to normal operation.

- If the monitor has been dropped or the cabinet has been damaged.
- When the video monitor exhibits a distinct change in performance.

• To ensure satisfactory operation, use the monitor only with UL Listed computers which have appropriate configured receptacles marked between 100 - 240 VAC, Min. 3.0A.

FCC Class B Radio Frequency Interference Statement

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 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.

NOTICE
Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

DOC compliance notice

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications

"Le present appreil numerque n'emet pas de bruits radioelectriques depassant les limites applicables aux areils numeriques de class B prescrites dans le reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada."

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GENERAL DESCRIPTION

This monitor is a high-performance intelligent multi-scan color monitor. It is designed to be compatible with all modes between 30 kHz and 95 kHz.

The microprocessor-based design was implemented with the user in mind, providing digital user controls for precision, auto synchronization and auto-sizing for convenience, user programmability for flexibility, as well as built-in tilt and swivel base for comfort in prolonged usage.

To meet the demand of the multimedia age and enabling customers to use the computer more conveniently, this model offers the following exciting options for the customers to select: USB connector and the swivel Base with Speaker.
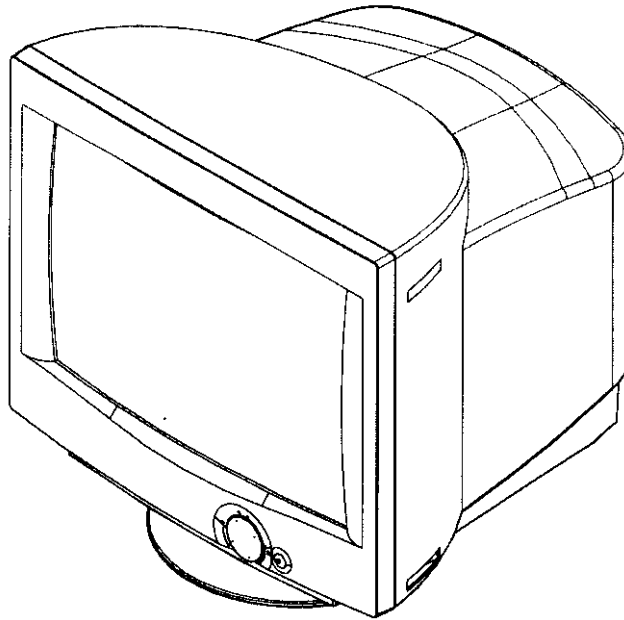

Figure 1 Multiscan Color Monitor

NOTE: To get the most from your monitor, read through this user's guide before installing and using the monitor.

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PRODUCT PACKAGE

Plan the most convenient location for your monitor and avoid using sharp object in opening the carton. Open the shipping carton and check the contents of the package. The package should include the following items:

- Monitor
- Swivel base
- Power cord
- USB cable (option)

If any items are missing, contact your supplier immediately. Remove the monitor from its shipping carton. Save the carton and packaging materials, in case you ever need to pack and relocate the monitor.

Installing and Removing the Swivel Base

To attach the swivel base to the monitor, do the following:

1. Carefully turn the monitor on its side or upside-down.
2. Locate the cavities at the bottom front of the monitor.
3. Insert the pegs on the swivel base into these cavities. Push the swivel base forward until the swivel base locks in place.
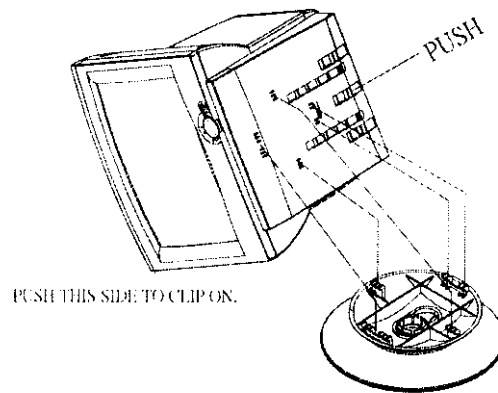4. Turn the monitor right-side up and begin to install the monitor.

Figure 2 Installing the Swivel Base

To remove the swivel base, hold the bottom of the swivel base, then push it out. User can easily lift off the swivel base from the monitor body.

INSTALLATION

Safety Checks

Make sure the monitor and system unit power switches are off, when you start connecting cables. This monitor is set for 100-240 Vac 60/50 Hz (full range). Confirm the line voltage for your monitor by checking the voltage label on the rear panel of the monitor.
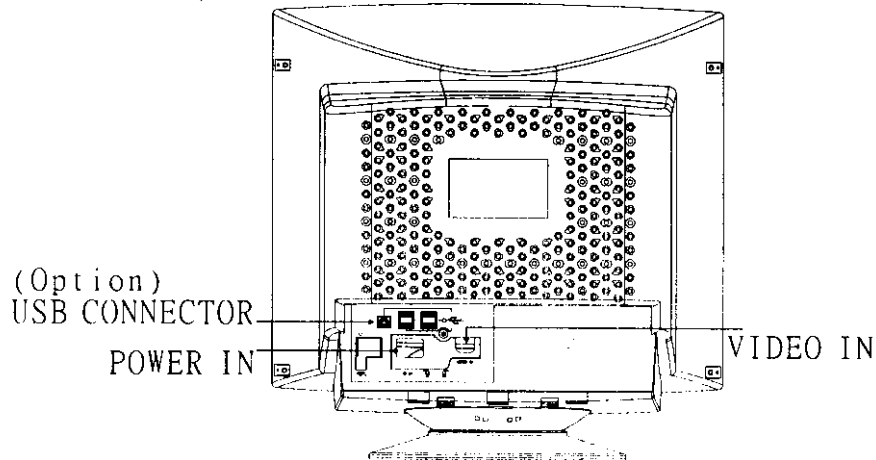

Figure 3 *Installing the Swivel Base*

Connecting the Video Cable

The monitor comes with a built-in video cable. Plug the signal cable's 15-pin connector into the computer's video port and tighten the two screws on the cable connector. As Figure 3.

Connecting the Power Cord

Plug the power cord into the monitor's AC power jack. Then plug the power cord into a grounded AC outlet or UL-approved power strip.
Caution: *If the AC outlet is not grounded (with three holes), install the proper grounding adapter (not supplied).*

USB Connector (option)

This monitor provides the Universal Serial Bus (USB) to connect with the USB cable or device.

OPERATION

All the adjustments are controlled by a Rotary Encoder located on the right front side. See Figure 4. User could make a good appear-ance of the monitor to suit your personal preference by the Encoder.
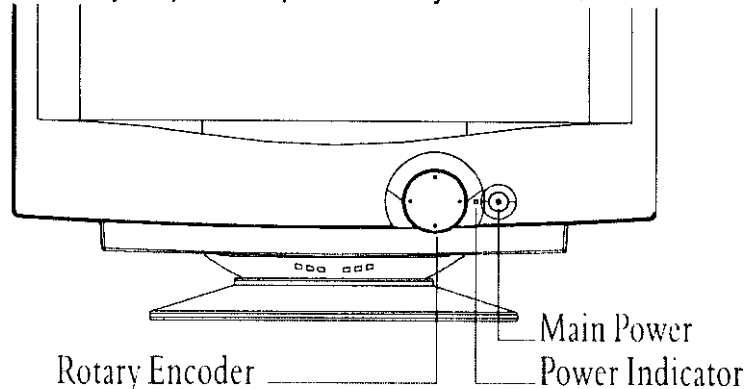

Figure 4 Power Switch and Control Knob

Front Panel Descriptions

MAIN Power(⏻): To turn on or off the monitor.
Power Indicator: Lights up when the power is ON.
Rotary Encoder: To control functions of the monitor.
Rotate to switch the function or adjust function scale. Press to select a function or execute function.

Auto Save Function

The monitor provides an auto save function. After you have changed any of the settings and waited for about 10 seconds, the new values will be saved in the monitor's non-volatile memory. They are stored even if you switch off the monitor.

On Screen Display (OSD) Message

The OSD is a message that displays on the monitor screen. The OSD message can show the function scale and the mode's frequency. When user does not press key at 10 seconds later, the OSD message is been off.
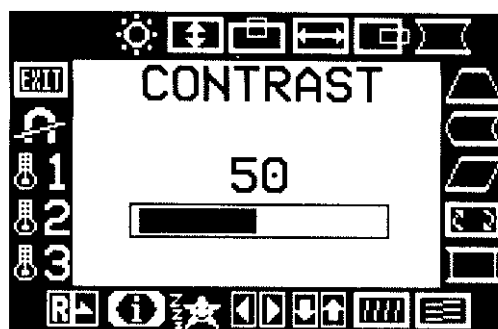
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Figure 5 *The OSD Message*

How to Adjust a Setting

1. Press the Encoder to show the OSD window.
2. Rotate the Encoder to switch the desired function. See figure 5.
3. Press the Encoder again to select the function that you want to adjust.
4. Rotate the Encoder to change the adjustment of the selected function.
5. If you do not change any other setting, the OSD window will go out after approx. 10 seconds and the new setting has automatically been saved. If not, then you can select the ◑ symbol and press the Encoder to end adjustment.

If you like to adjust other functions, repeat steps 2~5.

Function and Description of the OSD

◑ **Contrast:**
To adjust the picture contrast on the display.

☼ **Brightness:**
To adjust the picture brightness of the display.

⊞ **V-size:**
To adjust the vertical size of the display.

⊡ **V-center:**
To adjust the vertical position of the display.

⊟ **H-width:**
To adjust the horizontal width of the display.

⊡ **H-phase**
To adjust the horizontal position of the display.

⊔ **Pincushion:**
To adjust Barrel and Pincushion.

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⊏ **Balance:**
To adjust the balance of the display.

△ **Trapezoid:**
To adjust Trapezoid distortion.

⊿ **Parallel:**
To adjust the parallel of the display.

▣ **Rotation:**
To adjust the rotation of the display.

⊓ **Corner:**
To adjust the corner of the display..

▤ **H-Moire:**
To adjust the horizontal moire of the display.

▥ **V-Moire:**
To adjust the vertical moire of the display.

▦ **OSD window position:**
To move up or lower the OSD window position of the display.

◀▶ **OSD window position:**
To move right or left the OSD window position of the display.

▨ **Power management switch:**
To enable or disable power management of the monitor.

ⓘ **Information of the mode:**
To show the mode's frequency or turn off the OSD windows.

▣ **Recall:**
To get the factory preset parameters for Contrast, Brightness, V-size, V-center, H-width, H-phase, Pincushion, Trapezoid, Balance, Parallelogram, Rotation and Moire.

♨3 **User-1:**
To adjust the white balance of the display.

♨2 **6500°K:**
The white balance sets 6500°K color temperature.

♨1 **9300°K:**
The white balance sets 9300°K color temperature.

♫ **Degaussing:**
To correct display distortion or discoloration due to magnetic field interference in case you have moved the monitor while in operation.

▥ **Exit:**
To adjust the balance of the display.

Color Temperature

Color Temperature is measured on the Kelvin (K) temperature scale. The monitor provides 3 color temperature items to user for different view shows. For example. Select 9300°K color for the white page with black word used in word processing and numeric calculations. Selects 6500°K color for the more realistic colors used in picture of people or landscape. The user's personal preferences, please select custom color. The custom color includes 2 items as below:

◑ R-DRIVER: To adjust Red of foreground
◑ B-DRIVER: To adjust Blue of foreground

Follow the steps as below to adjust custom color temperature of the monitor.

1.   Press the Encoder to show the OSD window.
2.   Rotate the Encoder and switch to the ◑ symbol.
3.   Press the Encoder again to select the color temperature function.
4.   Rotate the Encoder and select to the custom color.
5.   Press the Encoder again to enter the custom color.
6.   Rotate the Encoder to switch the custom color item.
7.   Press the Encoder to enter the custom color item.
8.   Rotate the Encoder to change adjustment of the selected item.
9.   If you do not change any other setting of the custom color item, the OSD window will go out after approx. 10 seconds and the new setting has automatically been saved. If not, then you can select the RETURN item and press the Encoder to end adjustment of the custom color.

If you like to adjust other item, repeat steps 6~9.

POWER MANAGEMENT

This monitor meets the power management standards as set by the Video Electronics Standards Association (VESA) and /or the United States Environmental Protection Agency (EPA). This feature is designed to conserve electrical energy by reducing power consumption.

This function is actived by an operating system or Windows utility program which turns off the monitor display and also turns off, or changes the color of the monitors power indicator.

Mode	Signal				Power	
	Cable	HSync	VSync	Video	Indicator	Consumption
ON*	Attach	Yes	Yes	Actived	Green	$\leq$150W
Stand-by	Attach	No	Yes	Blanked	Amber	$\leq$15W
Suspend	Attach	Yes	No	Blanked	Amber	$\leq$15W
OFF	Attach	No	No	Blanked	Amber	$\leq$3W
Override	Attach	No	No	OVERRIDE SYNC ERROR	Green	$\leq$150W

* In the power on condition, this monitor also provides override mode to lets the end user with a troubleshooting capability. The override mode is not state of power management.

We recommend to switch off the monitor when it is not in use for quite a long time.

The override mode means the monitor displays <u>OVERRIDE SYNC ERROR</u> if you turn on the monitor before you turn on the computer. And the power indicator shows green.
Note: *If you turn off the computer before you turn off the monitor, the monitor goes power management OFF mode. And the power indicator shows amber.*

It is the best choice to disable power management 🔰 of the monitor for avoiding the speaker performs below it's normal capacity, if you purchase simultaneously the swivel base with speaker.

TROUBLESHOOTING

This section provides solutions to minor problems you may encounter when installing or using this monitor. If the problem persists after trying the suggestions in Table 1, contact your place of purchase.

No Picture
- Check that both power and signal cable are securely connected.
- Adjust the brightness and contrast controls.

Poor Picture
- Adjust the brightness and contrast controls.
- Check your display adapter configuration. (Refer to your display adapter manual.)

Picture Locks or Center Shifts
- Adjust vertical center and horizontal phase controls.

Picture is Too Large or Small
- Adjust vertical size control or horizontal width control.

TECHNICAL INFORMATION

Precautions

- Only a qualified service technician should open the monitor case. Components inside the monitor can cause serious electric shock. Do not attempt to remove the back cover of the monitor by yourself. Contact your monitor dealer or authorized service personnel if your monitor needs to be repaired.
- To prevent fire or shock hazard, do not expose this monitor to rain or moisture.

Specifications

CRT:

1. CRT Size   : 48 cm (19")
2. Visible Size   : 45 cm (17.7") max. Screen Diagonal
3. Deflection   : 90-degree deflection
4. Dot pitch   : 0.26 mm
5. Phosphor   : P22
6. Surface   : Nonglare
7. Transmission   : 46%

Video and Synchronization Signals:

1. Signal cable   : 15-pin D-type connector
2. Video   : Analog levels
3. Horizontal Sync   : TTL Positive/Negative
4. Vertical Sync   : TTL Positive/Negative
5. Bandwidth   : 150 MHz(Nominal)
6. Display Area   : 350x260mm ±5mm(STANDARD MODE)
7. Display Colors   : limited by VGA card
8. Video signal input   : 0.7 Vpp (Max: 1.0 Vpp)

Display Data Channel:

1. Compatibility   : VESA DDC 1/2B

Scanning Frequency:

1. Horizontal   : 30 kHz to 95 kHz
2. Vertical   : 47 Hz to 150 Hz

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Power Supply:
1. Input voltage   : 100 - 240 Vac 60/50 Hz
2. Consumption   : 150 Watts maximum

Environment:
1. Operating
  - Temperature   : 0°C to 40°C
  - Humidity   : 20% to 80%
2. Nonoperating
  - Temperature   : -20°C to 60°C
  - Humidity   : 10% to 90%

Dimension:
455 mm(W)x 466 mm(H)x 421 mm(D) (with normal base)

Weight:
Approx. 19.5 Kgs(NET)

X-Radiation:
1. DHHS
2. PTB (Self Certificated)

Regulatory:
1. Optional FCC-B/UL/CSA
2. Optional TÜV -GS
3. Optional MPR II(MPR 1990:10)
4. Optional TCO
5. Optional NORDIC
6. Optional CE

NOTE: If discrepancy occurs between the above specification regulation and that listed on back label, use the later as standard.

Display Mode

Standard	Resolution	Hor/Ver Frequency	Interlaced(I) Non-Interlaced(NI)
IBM/VGA	720x400	31.5 kHz / 70 Hz	NI
IBM/VGA	640x480	31.5 kHz / 60 Hz	NI
VESA/75	640x480	37.5 kHz / 75 Hz	NI
VESA/85	640x480	43.3 kHz / 85 Hz	NI
VESA/75	800x600	46.9 kHz / 75 Hz	NI
VESA/85	800x600	53.7 kHz / 85 Hz	NI
VESA/75	1024x768	60.0 kHz / 75 Hz	NI
VESA/85	1024x768	68.6 kHz / 85 Hz	NI
VESA/75	1280x1024	80.0 kHz / 75 Hz	NI
VESA/75	1600x1200	93.7 kHz / 75 Hz	NI

Video Pin Assignments

D-Type 15-Pin Connector Pinout

Pin no.	Description
1	Red
2	Green
3	Blue
4	No connect
5	Ground
6	R-Ground
7	G-Ground
8	B-Ground
9	No connect
10	Ground
11	I/D bit-0
12	DDC
13	H-sync
14	V-sync
15	DDC2