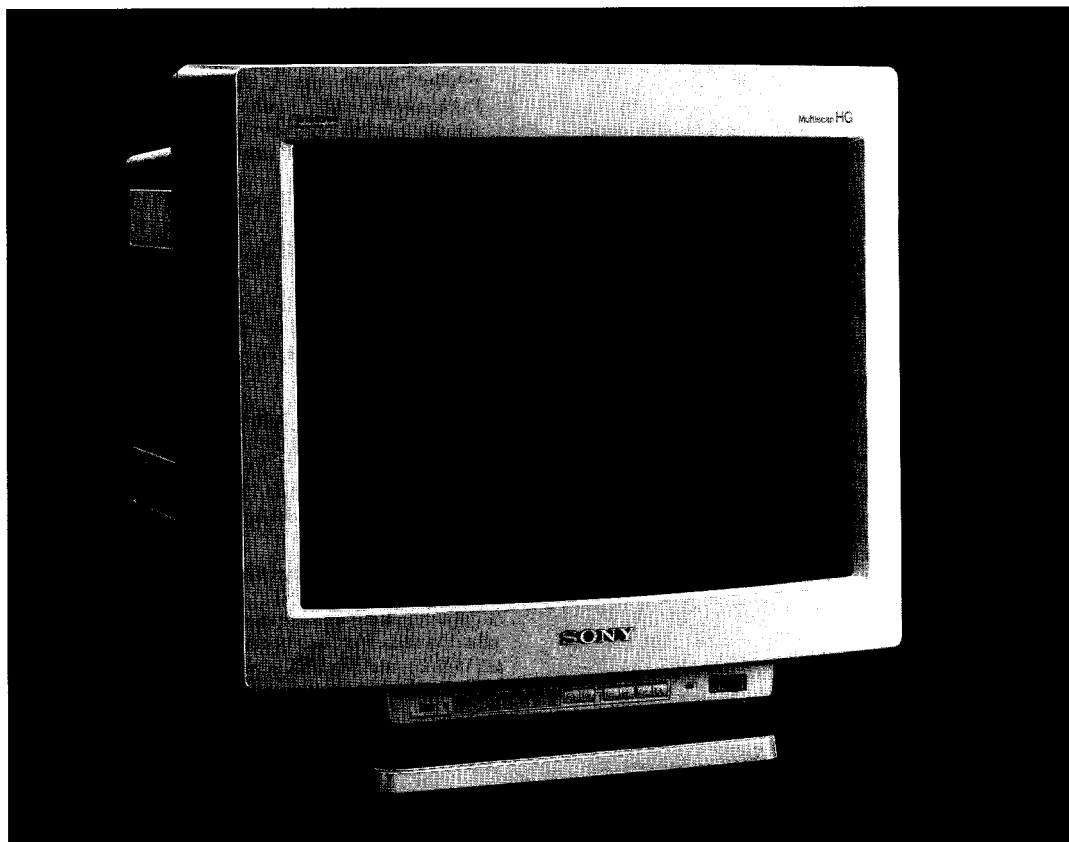


Multiscan® Color Graphic Display

---

# GDM-2038

**Operating Instructions**  
**Mode d'emploi**



## Owner's Record

The model and serial numbers are located at the rear of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your dealer regarding this product.

Model No. GDM-2038      Serial No. \_\_\_\_\_

## WARNING

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

"You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment."

### For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

### Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

### INFORMATION

This product complies with Swedish National Council for Metrology (MPR) standards issued in December 1990 (MPR II) for very low frequency (VLF) and extremely low frequency (ELF).

### INFORMATION

Ce produit est conforme aux normes du Swedish National Council for Metrology de décembre 1990 (MPR II) en ce qui concerne les fréquences très basses (VLF) et extrêmement basses (ELF).

### Hinweis

Dieses Gerät erfüllt bezüglich tieffrequenter (very low frequency) und tiefstfrequenter (extremely low frequency) Strahlung die Vorschriften des „Swedish National Council for Metrology (MPR)“ vom Dezember 1990 (MPR II).

### INFORMACIÓN

Este producto cumple las normas del Consejo Nacional Sueco para Metrología (MPR) emitidas en diciembre de 1990 (MPR II) para frecuencias muy bajas (VLF) y frecuencias extremadamente bajas (ELF).

### Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß der Monitor GDM-2038 in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr.1046/1984 funktentstört ist. Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.  
Sony Corporation

### Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

### Hinweise

- Aus ergonomischen Gründen wird empfohlen, die Grundfarbe Blau nicht auf dunklem Untergrund zu verwenden (schlechte Erkennbarkeit, Augenbelastung bei zu geringem Zeichenkontrast).
- Aus ergonomischen Gründen sollten nur Darstellungen auf dunklem Hintergrund bei Vertikalfrequenzen ab 60 Hz (ohne Zeilensprung) benutzt werden.
- Die Konvergenz des Bildes kann sich auf Grund des Magnetfeldes am Ort der Aufstellung aus der korrekten Grundeinstellung verändern. Zur Korrektur empfiehlt es sich deshalb, die Regler an der Frontseite für H. STAT und V. STAT so einzustellen, daß die getrennt sichtbaren Farblinien für Rot, Grün und Blau bei z. B. der Darstellung eines Buchstabens zur Deckung (konvergenz) gelangen. Siehe hierzu auch die Erklärungen zu H. STAT und V. STAT.

### NOTICE

This notice is applicable for USA/Canada only. If shipped to USA/Canada, install only a UL LISTED/CSA LABELLED power supply cord meeting the following specifications:

#### SPECIFICATIONS

Plug Type	Nema-Plug 5-15p
Cord	Type SVT or SJT, minimum 3 × 18 AWG
Length	Maximum 15 feet
Rating	Minimum 7A, 125V

### NOTICE

Cette notice s'applique aux Etats-Unis et au Canada uniquement.

Si cet appareil est exporté aux Etats-Unis ou au Canada, utiliser le cordon d'alimentation portant la mention UL LISTED/CSA LABELLED et remplissant les conditions suivantes:

#### SPECIFICATIONS

Type de fiche	Fiche Nema 5-15 broches
Cordon	Type SVT ou SJT, minimum 3 × 18 AWG
Longueur	Maximum 15 pieds
Tension	Minimum 7A, 125V



Multiscan® Color Graphic Display

---

# GDM-2038

## **Operating Instructions**

Before operating the unit, please read this manual thoroughly and retain it for future reference.

English

---

# Table of Contents

Overview .....	4
Precautions .....	5
Function of controls .....	6
Connection .....	9
Preset mode .....	10
Adjustment .....	11
Specifications .....	17
Appendix .....	19
Sony display memory system .....	19
Sony trinitron system .....	20

## Overview

---

The Sony GDM-2038 is a multiscan-type Trinitron™ color graphic display, that displays the video signals input from the connected computer with the optimum picture quality. It can input a wide range of video signals (28 to 85 kHz of horizontal scan and 50 to 160 Hz of vertical scan), and can be used with a variety of computers and work stations. Its new "Sony Display Memory System (SDMS)" automatically distinguishes the type of input signals and provides an optimum display without any manual adjustment. It has factory-preset display values for 9 different types of signals (preset-type models) within the SDMS memory. The values for up to 15 types of signals can additionally be preset to the memory.

The Sony GDM-2038 is a result of Sony's 20-year commitment to the proprietary Emmy Award winning Trinitron and our engineering expertise.

# Precautions

---

## Installation

- Prevent internal heat build-up by allowing adequate air circulation. Do not place the unit on surfaces (rugs, blankets, etc.) nor near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit near heat sources such as radiators or air ducts, nor in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not place the unit near equipment which generates magnetism, such as a converter or high voltage power lines.

## Warning on Power Connection

- The supplied power cord may be connected only to 100 to 120 V AC, 50/60 Hz power sources. Do not use it for 220 to 240 V AC, 50/60 Hz power sources.
- To disconnect the power cord, wait for at least 30 seconds after turning off the power for discharging the static electricity on the CRT display surface.
- After the power has been turned on, the CRT is demagnetized for approximately 5 seconds. This generates a strong magnetic field around the bezel which may affect the data stored on magnetic tape or disks near the bezel. Place such magnetic recording equipment and tapes/disks apart from this unit.

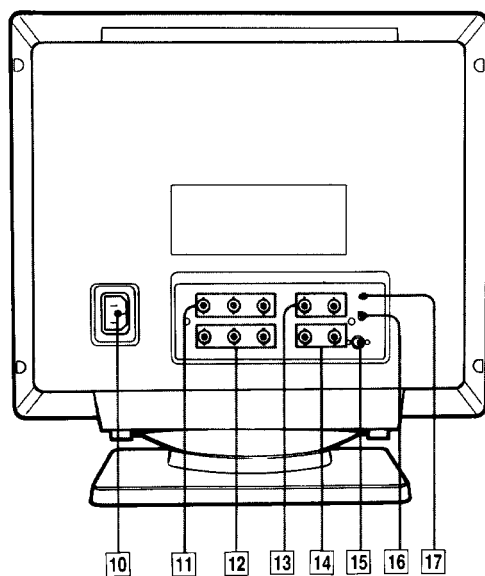
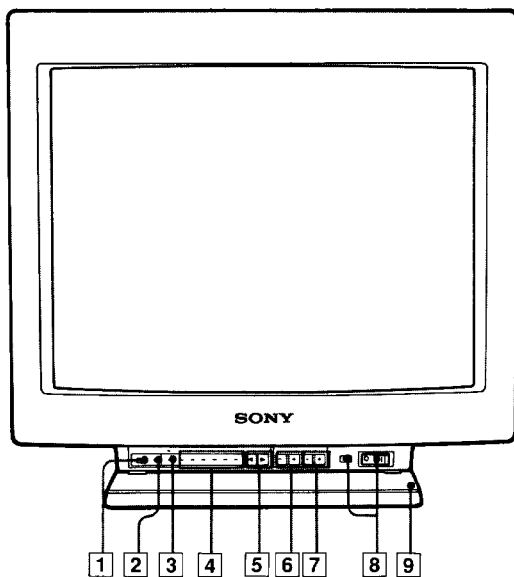
## Maintenance

- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent, such as alcohol or benzene.
- The surface of the CRT display is AR-coated. Never use a strong solvent, such as benzene, to clean the surface, otherwise the AR-coating will come off.

# Function of Controls

---

Refer to the pages in ● for details.



**1 COLOR SELECT switch 18**

Switches the color temperature to L (Low), M (Middle), or H (High).

Each color temperature is preset as follows:

- L: approximately 5000°K
- M: approximately 6500°K
- H: approximately 9300°K

**2 Color adjustment button 18**

Press to adjust the color temperature. The color adjustment indicator 3 lights, showing the color temperature is adjustable.

**3 Color adjustment indicator 18**

The indicator lights when the color adjustment button 2 is pressed. While the indicator is lit, select the color element out of R (Red), G (Green), and B (Blue) by using the SELECT </> buttons 5.

Adjust the selected element by using the ADJUST +/- buttons (red) 7.

Press the color adjustment button 2 again to turn the indicator off.

**4 Indicators 12**

One of the indicators that corresponds to the adjustment item selected by the SELECT </> buttons 5 lights.

While the indicator is lit, adjust the item by using the ADJUST +/- buttons (blue) 6 or (red) 7.

**5 SELECT </> buttons 11 18**

Press to select the adjustment item so that the indicator corresponding to the selected item lights.

**6 ADJUST +/- buttons (blue) 11**

Adjust the item shown below the indicator selected by using the SELECT buttons </> 5.

**7 ADJUST +/- buttons (red) 11 18**

Adjust the item shown above the indicator selected by using the SELECT buttons </> 5.

**8 Power switch and lamp**

Press the I side of the switch to turn on the power. Press the O side to turn it off.

**9 Swivel/Tilt stand**

The stand allows the angle of the screen to be adjusted by 90 degrees horizontally and by 15 degrees vertically.

**10 AC IN connector**

**11 VIDEO OUT (video output) connectors (BNC)**

Use these connectors to distribute the video signal fed to this unit to another monitor.

When cables are connected to these connectors, the 75-ohms termination of the VIDEO IN connectors 12 is released automatically.

**12 VIDEO IN (video input) connectors (BNC)**

Accept RGB video signals (0.714 Vp-p, positive).

When no external sync signal is applied, an internal sync signal (0.286 Vp-p, negative) must be added to the G (green) signal.

**Note**

The optimum display may not be obtained when using computer or video board of high output level (approx. 1.0 Vp-p). In such a case, adjust the display by lowering the contrast, or use computer or video board of adequate output level.

**13 SYNC OUT (sync output) connectors (BNC)**

Use these connectors to distribute the external sync signal fed to this unit to another monitor.

When cables are connected to these connectors, the termination of the SYNC IN connectors 14 is released automatically.

**Notes**

- Use a coaxial cable that is less than 3 meters long and of 75 ohms impedance to connect the VIDEO OUT and SYNC OUT connectors. If the cable is too long, or if its impedance is incorrect, or if several monitors are connected in cascade, the picture may be noisy with horizontal and vertical lines.
- When not distributing signals to another monitor, disconnect the cables from the VIDEO OUT and SYNC OUT connectors.
- If the BNC connector of the signal distributing cable is not adequate, the termination impedance may not be disconnected properly. Always use the cable with adequate BNC connectors.

## Function of Controls

---

### 14 SYNC IN (sync input) connectors (BNC)

Accept external sync signals (2 to 5 Vp-p, positive or negative).

**HD** : for horizontal drive pulse or composite drive pulse

**VD** : for vertical drive pulse

When an external sync signal is applied, the monitor is switched automatically from the internal sync mode to the external sync mode. When the G signal contains the sync signal, however, the hue of the monitor may be changed. In this case, disconnect the external sync signal and apply the internal sync signal mode.

### 15 External communication terminal

The terminal is to be used by Sony servicemen only for external communication.

### 16 75Ω/2kΩ selector

Switches the impedance of the SYNC IN connectors termination to 75Ω or to 2kΩ. When external sync signals are input, normally set this selector to the 75Ω position. If good synchronization cannot be obtained, set this selector to the 2kΩ position.

### 17 RESET button 15 16

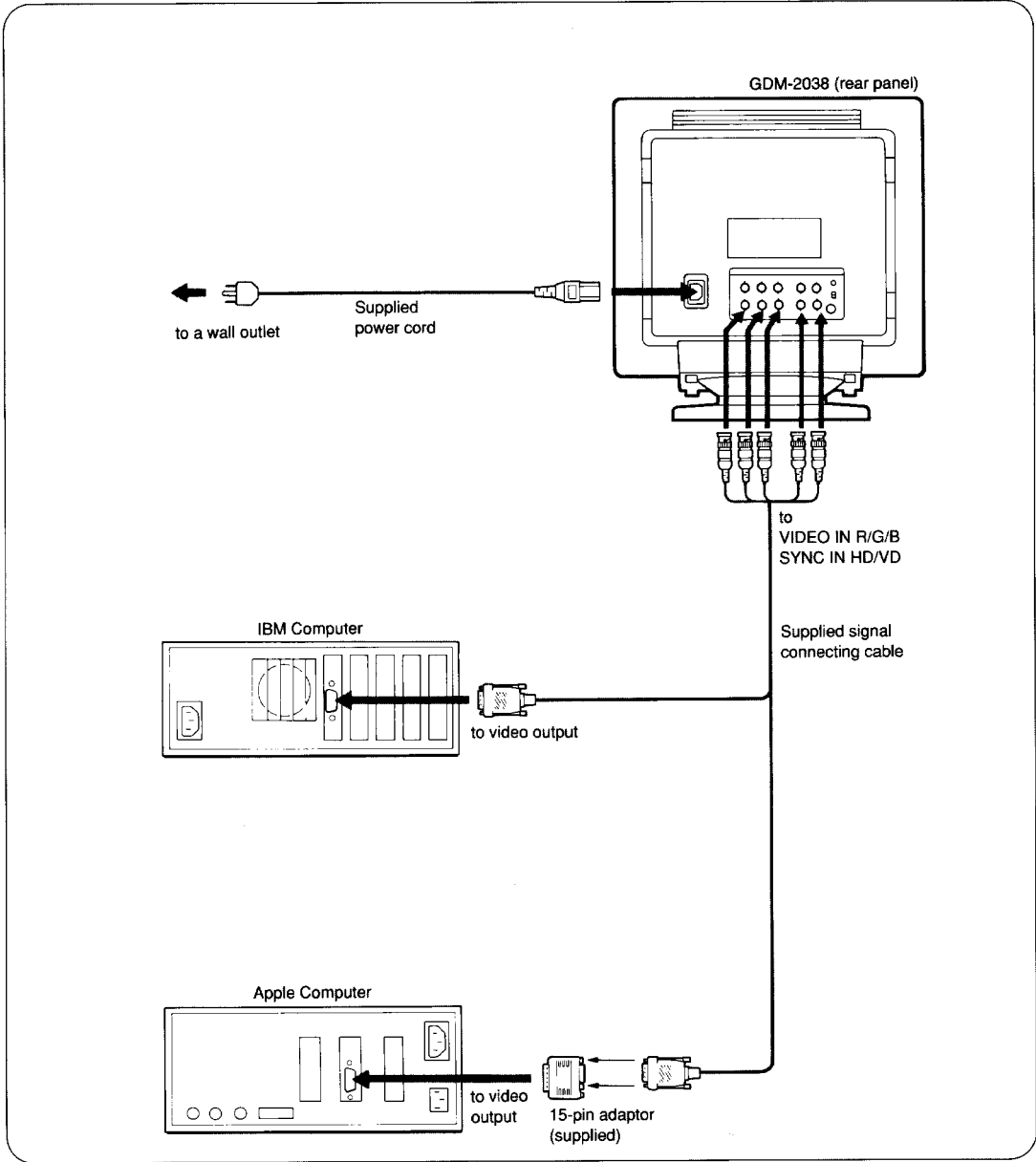
Press to clear every user-stored display condition for 15 different types of input signals.

Press the button while the power is turned on.



# Connection

Connect the computer using the supplied signal connecting cable as shown. When connecting with other cables, refer to the instruction manual supplied with the cable or the computer.



# Preset Mode

---

The GDM-2038 adjusts automatically the display size and position to the optimum in accordance with the input signals of up to 24 different types.

It has factory-preset setting values for 9 different types of signals. When a computer or a work station that issues such signal is connected, the optimum display is obtained without any manual adjustment (preset mode).

The factory-preset values and corresponding computer/work station models (called "preset-type models" in this manual) are as follows:

No.	Display (dots × lines)	Horizontal frequency	Vertical frequency	Scanning mode	Preset-type signals
1	640 × 480	31.5 kHz	60 Hz	Non Interlace	VGA graphic*
2	720 × 400	31.5 kHz	70 Hz	Non Interlace	VGA text*
3	640 × 480	37.9 kHz	73 Hz	Non Interlace	VESA**
4	800 × 600	48.1 kHz	72 Hz	Non Interlace	VESA**
5	1024 × 768	56.5 kHz	70 Hz	Non Interlace	VESA**
6	1024 × 768	57.9 kHz	72 Hz	Non Interlace	—
7	1152 × 870	68.7 kHz	75 Hz	Non Interlace	Macintosh II*** Two-Page
8	1280 × 1024	78.9 kHz	74 Hz	Non Interlace	—
9	1280 × 1024	81.2 kHz	76 Hz	Non interlace	—

\* VGA is the trademark of International Business Machines Corporation.

\*\* VESA is the trademark of a non-profit organization, Video Electronics Standard Association.

\*\*\* Macintosh II is the trademark of Apple Computer Inc.












- The buttons on the front panel allow manual adjustment when a signal from equipment other than the preset-type models is input. Fifteen different manually adjusted conditions are stored in memory, and called back when the same signal is input again so that the optimum display for this signal is obtained automatically.
- The type of input video signal is discriminated according to its signal specifications, such as horizontal frequency or sync polarity. When the signal specifications of the input signals are almost similar, however, these signals may not be discriminated as different.

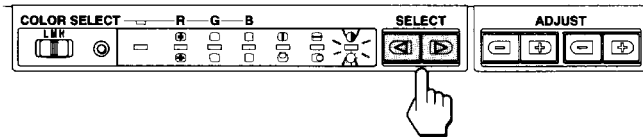
# Adjustment

## Adjusting the Picture Quality

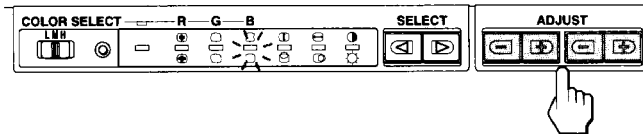
When a computer or a work station of one of the preset-type models or equivalent (see page 10) is connected, no picture adjustment is necessary. In other cases, proceed as follows to get the optimum picture.


**1** Turn on the unit, and feed the video signal from the connected computer/work station.

**2** Press the **SELECT** </> buttons to choose the adjustment item. The indicator corresponding to the selected item lights up. When the power is turned on, the  indicator is lit. Pressing the **SELECT** < button changes the item in the following order:  →  →  →  →  →  →  →  →  → . Pressing the **SELECT** > button changes the item in the reversed order. For what the indicators mean and how to make an adjustment, see the next page.















**3** Observe the picture, and press the **ADJUST** +/- buttons (blue) or (red) while the target indicator is lit. To adjust the item shown below the indicator, use the **ADJUST** +/- buttons (blue). To adjust the item shown above the indicator, use the **ADJUST** +/- buttons (red).



If you do not press the **SELECT** </> buttons or the **ADJUST** +/- buttons within 10 seconds, the  indicator lights up again.

## What the Indicators Mean and How to Adjust

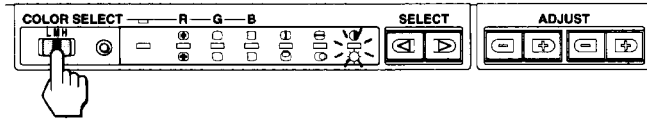
Indicator that is lit	Meaning/How to adjust
	<b>Adjust the contrast of the picture.</b> Press ADJUST + (red) for more contrast. Press ADJUST – (red) for less contrast.
	<b>Adjust the brightness of the picture.</b> Press ADJUST + (blue) for more brightness. Press ADJUST – (blue) for less brightness.
	<b>Adjust the horizontal size of the picture.</b> Press ADJUST + (red) to enlarge the horizontal size. Press ADJUST – (red) to diminish it.
	<b>Adjust the horizontal centering of the picture.</b> Press ADJUST + (blue) to move the picture to the right. Press ADJUST – (blue) to move it to the left.
	<b>Adjust the vertical size of the picture.</b> Press ADJUST + (red) to enlarge the vertical size. Press ADJUST – (red) to diminish it.
	<b>Adjust the vertical centering of the picture.</b> Press ADJUST + (blue) to move the picture upward. Press ADJUST – (blue) to move it downward.
	<b>Adjust the pincushion distortion of the picture.</b> Press ADJUST + (red) to curve both the right and left sides of the picture outward. Press ADJUST – (red) to curve them inward.
	<b>Adjust the pincushion distortion balance of the picture.</b> Press ADJUST + (blue) to curve the picture toward the right. Press ADJUST – (blue) to curve it toward the left.
	<b>Adjust the keystone distortion of the picture.</b> Press ADJUST + (red) to diminish the lower part of the picture. Press ADJUST – (red) to diminish the upper part of the picture.
	<b>Adjust the keystone distortion balance of the picture.</b> Press ADJUST + (blue) to tilt the picture to the right. Press ADJUST – (blue) to tilt it to the left.
	<b>Adjust the horizontal static convergence.</b> Press ADJUST + (red) to move blue colors to the left and red colors to the right. Press ADJUST – (red) to move blue colors to the right and red colors to the left. Adjust while observing the center of the picture.
	<b>Adjust the vertical static convergence.</b> Press ADJUST + (blue) to move red colors upward and blue colors downward. Press ADJUST – (blue) to move red colors downward and blue colors upward. Adjust while observing the center of the picture.

### The indicator blinks when .....

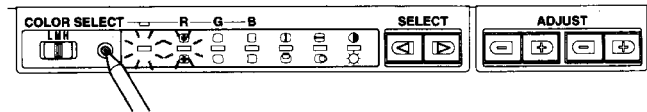
The limit value is achieved by pressing the ADJUST + or – button.

# Adjusting the Color Temperature

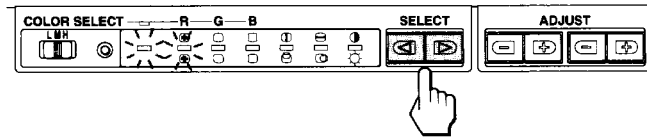
- 1** Slide the **COLOR SELECT** switch to select the color temperature to be adjusted.



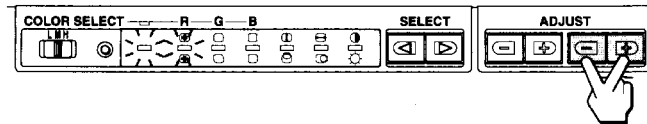
- 2** Press the color adjustment button with the tip of a ball-point pen or a similar object. The color adjustment indicator lights.



- 3** Press the **SELECT** </> buttons to select the color element out of R(Red), G(Green), and B(Blue) to be adjusted. The indicator corresponding to the selected element lights.

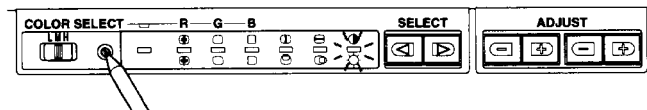


- 4** Press the **ADJUST +/-** buttons (red) while the indicator is lit.




If you do not press the **SELECT** </> buttons or the **ADJUST +/-** buttons (red) within 60 seconds, the color temperature adjustment mode is automatically canceled.

- 5** Press the color adjustment button again. The color adjustment indicator goes off. The adjusted values are automatically stored in memory and the adjustment mode of color temperature is released.















## Storing the Adjusted Condition

The adjusted display condition is stored in memory under the following conditions:

- When you select another adjustment item by pressing the SELECT </> buttons.
- When 10 seconds have elapsed after the adjustment and the /O indicator is lit.

The upper 8 adjustment items listed below are stored for each different input signal of up to 15 types.

The lower 4 adjustment items are stored independently from the types of input signals.

Adjustment item	How stored
 (horizontal size)  (horizontal centering)  (vertical size)  (vertical centering)  (pincushion distortion)  (pincushion distortion balance)  (keystone distortion)  (keystone distortion balance)	<p><b>They are stored together with the type of the input signal.</b></p> <p>The adjusted condition for up to 15 different input signals can be stored.</p> <p>The stored condition is called back from memory when the corresponding signal is input, and the optimum display is obtained for this signal.</p>
 (contrast)  (brightness)  (horizontal static convergence)  (vertical static convergence)	<p><b>They are stored independently from the input signal.</b></p> <p>Normally adjust the convergence when red and blue colors are shifted due to the direction of the unit, or by being affected by the terrestrial magnetism.</p>

### When the 16th condition is stored

The condition stored first is replaced by the 16th.  
 Care should be taken when a number of different conditions are to be stored.

### If you modify the condition for the preset-type models

It also will be stored in memory. When called back from memory, priority is given to the modified condition. When the user-stored conditions are cleared, the factory-preset conditions return.

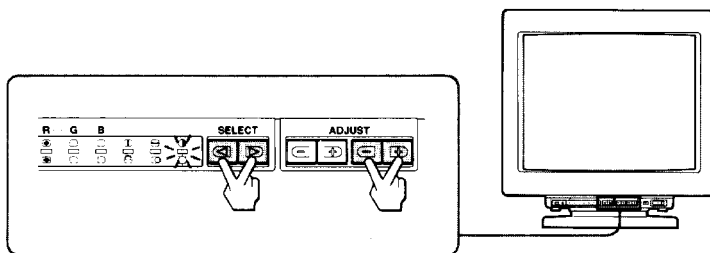
## Clearing the User-Stored Condition for Picture Quality

### Method 1

(Clearing the unnecessary user-stored conditions only for  $\text{R}$ ,  $\text{G}$ ,  $\text{B}$ , and  $\text{P}$ )

User-stored conditions for the four items can be cleared independently from the input signal.

Press the SELECT  $\triangleleft$  and  $\triangleright$  buttons to choose the item whose user-stored condition you want to clear. While the target indicator is lit, press the ADJUST  $\triangleleft$  and  $\triangleright$  buttons (red) for  $\text{R}$  (contrast) and  $\text{P}$  (horizontal static convergence), or (blue) for  $\text{G}$  (brightness) and  $\text{B}$  (vertical static convergence), simultaneously for 5 seconds or longer. The user-stored condition is reset to factory-preset condition.

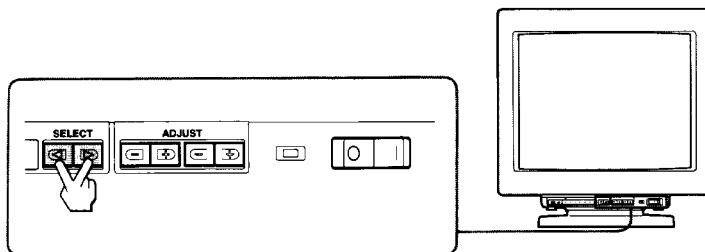


### Method 2

(Clearing the unnecessary user-stored conditions only for the items other than those of Method 1)

Input the signal whose user-stored conditions you want to clear while the power is turned on.

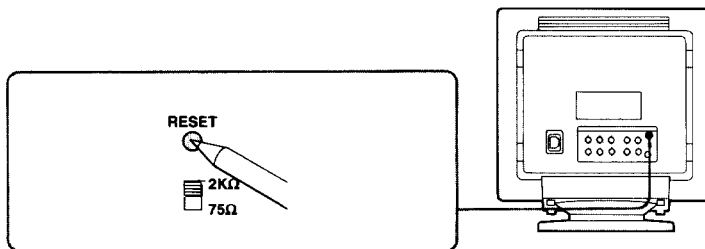
Press the SELECT  $\triangleleft$  and  $\triangleright$  buttons simultaneously for 5 seconds or longer. The relevant user-stored conditions are reset to factory-preset conditions.



### Method 3

(Clearing all the user-stored conditions at once)

Press the RESET button at the rear with the tip of a ball-point pen or a similar object while the power is turned on. All the user-stored conditions are reset to factory-preset conditions at once.



### When the user-stored condition is cleared

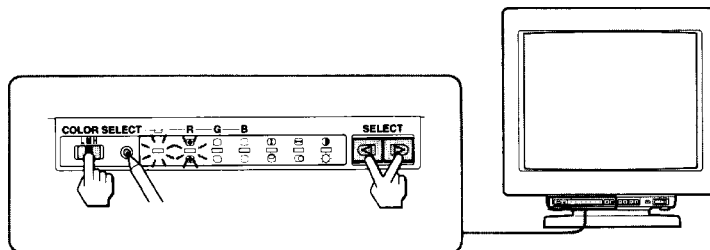
The 7 indicators light up at the same time (for about 0.25 seconds).

## Clearing the User-Stored Condition for Color Temperature

### Method 1

(Clearing the unnecessary user-stored conditions only)

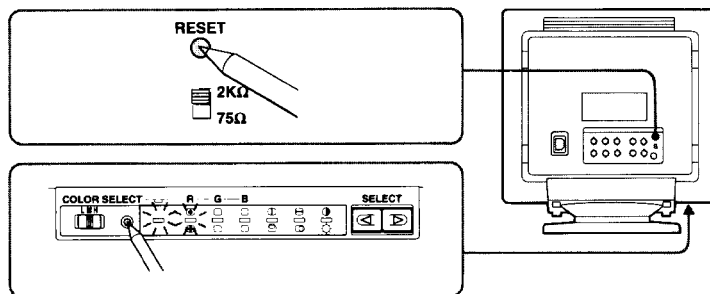
Select the color temperature by using the COLOR SELECT switch while the power is turned on. Press the color adjustment button. Then press the SELECT ◀ and ▶ buttons simultaneously for 5 seconds or longer while the color adjustment indicator is lit. The user-stored conditions of the selected color temperature are reset to factory-preset conditions.



### Method 2

(Clearing all the user-stored conditions at once)

Press the color adjustment button while the power is turned on. While the color adjustment indicator is lit, press the RESET button at the rear with the tip of a ball-point pen or a similar object. All the user-stored conditions are reset to factory-preset conditions at once.





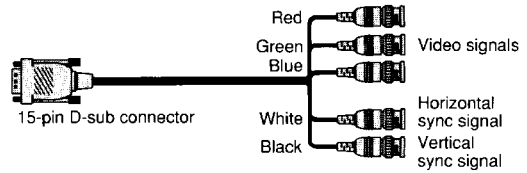
# Specifications

Picture tube	0.30 mm aperture grill pitch 20 inches measured diagonally (19" visual)
Effective picture size	90-degree deflection Approx. 384 × 290 mm (w/h) (15 1/4 × 11 1/2 inches)
Resolution	Horizontal : 320* to 1280 dots (*VGA mode) Vertical : 200* to 1024 lines (*VGA mode)
Display picture size	Approx. 373 × 280 mm (w/h) (14 5/8 × 11 inches) or Approx. 350 × 280 mm (w/h) (13 3/4 × 11 inches)
Deflection frequency	Horizontal : 28 to 85 kHz Vertical : 50 to 160 Hz
AC input voltage/current	100 to 120 V, Max. 3.7 A 220 to 240 V, 2.0 A
Dimensions	480 × 479 × 504.5 mm (w/h/d) (19 × 18 7/8 × 19 7/8 inches)
Weight	Approx. 32 kg (70 lb 9 oz)
Supplied accessory	AC power cord (for 100 to 120 V only) Signal cable (VGA - BNC × 5) 15-pin adaptor

Design and specifications are subject to change without notice.

## Supplied Signal Connecting Cable

The pin assignment of the supplied signal connecting cable is shown below.



Pin No.	Signal	Pin No.	Signal
1	Red video	9	N.C.
2	Green video	10	GND
3	Blue video	11	GND
4	GND	12	N.C.
5	N.C.	13	Horizontal sync
6	Red GND	14	Vertical sync
7	Green GND	15	N.C.
8	Blue GND		

# Specifications

## Detailed Timing Specifications of Preset-Type Models

Mode	1	2	3	4	5	6	7	8	9
Equiv. Standard	VGA Graphics*	VGA Text*	VESA	VESA	VESA	—	Macintosh II Two-Page	—	—
Resolution (H × V)	640 × 480	720 × 400	640 × 480	800 × 600	1024 × 768	1024 × 768	1152 × 870	1280 × 1024	1280 × 1024
Dot Clock (MHz)	25.175	28.332	31.500	50.000	75.000	75.000	100.000	135.000	140.000
<b>Horizontal**</b>									
Hor. freq. (kHz)	31.469	31.480	37.860	48.077	56.476	57.870	68.681	78.855	81.206
H-total	31.778	31.766	26.413	20.800	17.707	17.280	14.560	12.681	12.314
H-Front porch	0.636	0.635	0.762	1.120	0.320	0.320	0.320	0.237	0.229
H-Sync. width	3.813	3.813	1.270	2.400	1.813	1.920	1.280	1.067	0.714
H-Back porch	1.907	1.906	4.603	1.280	1.920	1.387	1.440	1.896	2.229
H-blanking	6.356	6.353	6.095	4.800	4.053	3.627	3.040	3.200	3.171
H-Active (μsec)	25.422	25.413	20.317	16.000	13.653	13.653	11.520	9.481	9.143
<b>Vertical</b>									
Ver. freq. (Hz)	59.94	70.11	72.81	72.19	70.07	71.8	75.06	74.11	76.18
V-total	525	449	520	666	806	806	915	1064	1066
V-Front porch	10	12	9	37	3	3	3	3	3
V-Sync. width	2	2	3	6	6	6	3	3	3
V-Back porch	33	35	28	23	29	29	39	34	36
V-blanking	45	49	40	66	38	38	45	40	42
V-Active (Lines)	480	400	480	600	768	768	870	1024	1024
Sync.	External	External	External	External	External	Internal	External	Internal	Internal
H-Polarity	(-)	(-)	(-)	(+)	(-)	N.A.	(-)	N.A.	N.A.
V-Polarity	(-)	(+)	(-)	(+)	(-)	N.A.	(-)	N.A.	N.A.
Scanning mode	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace	Non-interlace

\* VGA does not include border area.

\*\* Recommended horizontal timing conditions:

Horizontal front porch should be: >0.1μsec  
 Horizontal sync. width should be: >1.0μsec  
 Horizontal back porch should be: >1.2μsec  
 Horizontal blanking width should be: >3.5μsec

# Appendix

## Sony Display Memory System

The GDM-2038 incorporates the Sony Display Memory System (SDMS) that allows it to discriminate between the types of input signals and to automatically display the optimum picture.

The SDMS has a large-capacity non-volatile memory in which the display conditions for each input signal is stored. When the signal is input, the corresponding display conditions are called back from the memory and the unit is automatically adjusted for the signal.

It also has a video muting function. This function eliminates display distortions that may occur when the input video signal is changed.

Detailed explanation of the SDMS memory and the muting function are given below.

### The SDMS memory

There are two types of memory: factory-preset memory and user memory.

#### Factory-preset memory

As explained in "Preset Mode" on page 10 optimum display conditions for the 9 preset-type models (see the chart to the right) are stored in the memory area at the factory. No manual adjustment is necessary for these preset -type models.

The contents in this memory area can neither be modified nor erased by users. If you modify conditions while the signals are input from a preset-type model, the newly set conditions will be stored in the user memory area. Priority is given to the modified conditions stored in the user memory.

#### User memory

All the manual adjustments and modifications of an existing condition you make are stored in this memory area. They are stored together with the type of the input signal and called back from the memory when the signal is input again.

If you modify the condition already stored in the user memory, only the corresponding values are changed. The modified condition is not newly added to the memory.

1	VGA graphic
2	VGA text
3	VESA
4	VESA
5	VESA
6	1024 × 768
7	Macintosh II Two page
8	1280 × 1024
9	1280 × 1024
~	
1	
2	The user can store
3	the conditions for
4	up to 15 unique
5	video signals or
6	change the existing
7	factory-preset
8	condition in this
9	memory area.
~	
14	
15	

The factory-preset conditions are not modified or erased by user input. Upon reset of the system, all the contents of the user memory are cleared, but the factory-preset conditions in this memory area are not cleared.

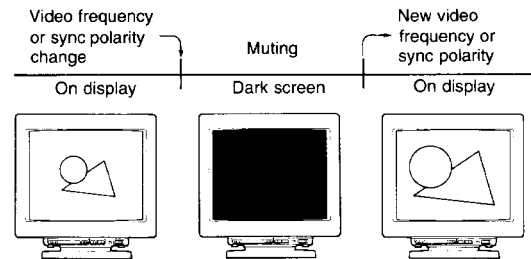
If more than 15 conditions are programmed into the user memory area, the last input condition will replace the first user input.

← The 16th entry moves to 1st location in the user memory.

### Sony Display Memory System memory map

### The video muting system

If the input video signal changes, the muting circuit senses the change and mutes the screen. This function eliminates scrambled images during the scanning transition.

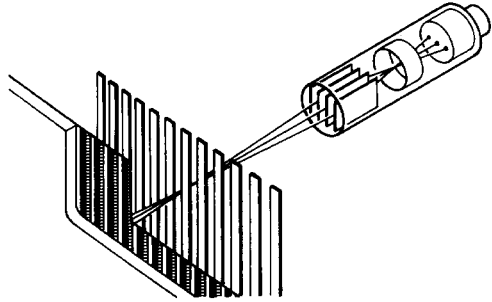


#### Note

The muting duration differs depending on the time that takes until the newly input signal is stabilized. It will last a minimum of 1.5 seconds approximately.

## Sony Trinitron System

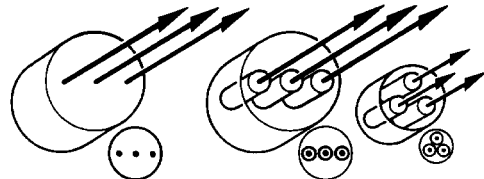
Sony used its skilled research and development teams to create the first Trinitron TV, introduced 20 years ago. Some 40 million Trinitrons have been sold worldwide so far, and Sony won the Emmy Award for technical quality in 1973. Its Super Fine Pitch (the narrowest dot pitch in the industry for each CRT size class) provides images that are just as sharp and clear as prints, making it most suitable for computer graphics, not to mention TV broadcasts.



### Features

#### Clear, crisp, and easy-to-read screen

Trinitron's black screen increases the contrast by 50 percent, and its 1-gun, 3-beam system with one large lens allows more precise color beam focusing. Thus colors are reproduced more distinctly. Higher contrast also recreates computer graphics and characters that are crisp, clear, and easy to read.

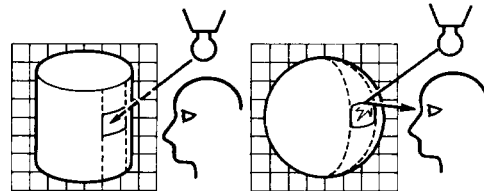


Trinitron's 1-gun, 3-beam system

Shadow mask

#### Display with less glare and distortion

Only Trinitron incorporates a cylindrical screen with a completely straight, vertically flat surface. The cylindrical screen delivers a clear undistorted picture, and also eliminates ambient light reflection, for long viewing without fatigue.



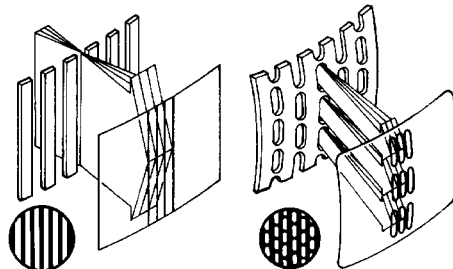
Trinitron's flat screen

Shadow mask

#### Brighter picture and more accurate colors

Sony's exclusive Aperture Grille with long and unbroken slits delivers more color and brightness to the screen. The result is a brighter and more beautiful picture.

This Grille is stabilized with two damper wires. When viewing images with light backgrounds, these wires are sometimes visible as two fine lines.



Trinitron's aperture grille system

Shadow mask