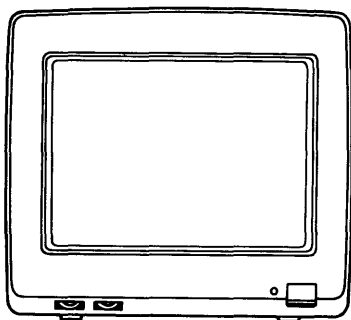




COLOR MONITOR

MODEL

AUM-1371A



Features:

- Automatic Tracking of wide range horizontal and vertical scanning frequencies.
 $f(H) = 15.6 \sim 35 \text{ KHz}$ $f(V) = 45 \sim 75 \text{ Hz}$
- Size and position of the screen can be adjusted with external controls.
- High-Resolution Color CRT, 0.31 mm Trio Dot Pitch, Diamond Matte Coating, Super-High Contrast Glass
- Diverse displays are obtainable by inputs of various signals such as composite video, RGB TTL, analog and monochrome.

CONTENTS

- 1 FCC STATEMENT
- 2 PRECAUTIONS
- 3 CONNECTING THE
MONITOR TO YOUR
EQUIPMENT
- 4 CONTROLS LOCATION
AND DISCRIPTION
- 5 INPUT SIGNAL
SPECIFICATIONS
- 6 USING THE SPECIAL
FEATURES
- 7 GENERAL
SPECIFICATIONS
- 8 OPTIONS

Congratulations

On your selection of MITSUBISHI color monitor AUM-1371A, you have acquired a product that will greatly enhance your video pleasure. Because of the sophistication of this advanced electronic device, we recommend that you thoroughly understand the contents of this operation and installation manual before using.

FCC RADIO FREQUENCY INTERFERENCE STATEMENT:

WARNING: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer Input/Output devices, terminals, printers, plotters, etc.) that are certified to comply with the Class B limits may be attached to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specification in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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 the receiving antenna
- Relocate the computer with respect to the receiver
- Move the computer away from the receiver
- Plug the computer into a different electric power outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

WARNING: Use the attached shielded power supply cable and attached or optional double shielded (1.1 m cord length) signal cables. If you use other cables, it may cause interference with radio and television reception.

PRECAUTIONS:

In the interest of safety, please observe the following precautions

NEVER REMOVE THE BACK COVER

A part of high the voltage circuit is involved. A careless touch may cause an electrical shock.

PROTECT THE POWER CORD

Damage to the power cord may cause fire or shock hazard. When unplugged hold by the plug only and remove carefully.

MAINTAIN GOOD VENTILATION

Ventilation slots and holes are provided on the top, rear sides and bottom of this unit. Place the unit on a hard and level surface and locate at least 4 inches from walls to ensure proper ventilation.

NEVER INSERT ANY OBJECT INTO THE SET

Foreign objects of any kind inserted into this unit constitute a safety hazard and can cause extensive damage.

DO NOT PLACE ANYTHING ON THE MONITOR

Heavy objects placed on the Monitor can cause damage or obstruct proper ventilation. Do not place on this unit any receptacle such as a vase or glass which contains any liquid. Using this unit with water or any liquid which might infiltrate into the unit may cause troubles such as fire and electric shock.

DO NOT SUBJECT THE SET TO IMPACT OR MECHANICAL SHOCK

Take care not to give an impact to the set when you carry it. Your attention is especially required for the CRT.

BE CAREFUL REGARDING MAGNETIC INFLUENCES

Drawing a magnet, speaker system, printer or floppy disk that will generate magnetism, near to the display unit may cause blurred colors deformed. Your attention is called to this point.

DO NOT USE WRONG PLACE.

This unit is designed to be used in offices or households. Please refrain from subjecting the unit to vibration or where hydrogen sulfide or sulfur oxide generates. Never place the monitor near or over a radiator, heat grill or in direct sunlight.

CARE OF THE CABINET

Unplug and clean with a soft cloth slightly moistened with a mild soap and water solution. Allow to dry completely before operating. Never use petroleum base solutions or abrasive cleaners.

3 CONNECTING THE MONITOR TO YOUR EQUIPMENT:

Before doing anything else, be sure the following is included in package.

- Color monitor (AUM-1371A)
- Power cord
- Operation manual
- Warranty card
- Signal cable (D-sub 9 pins to D-sub 9 pins connector)

1. Connecting to composite video source

Use BNC type connector to display NTSC video pictures from VCR, TV tuner, Video Disc Player and any other composite video sources.

Plug one end of the cable from composite video sources into ❶ VIDEO INPUT on the rear panel.

2. Connecting to RGB TTL source

Use attached D-sub 9 pins connector (option (b) on page 14) to display RGB TTL video pictures from Personal Computer or any other RGB TTL sources.

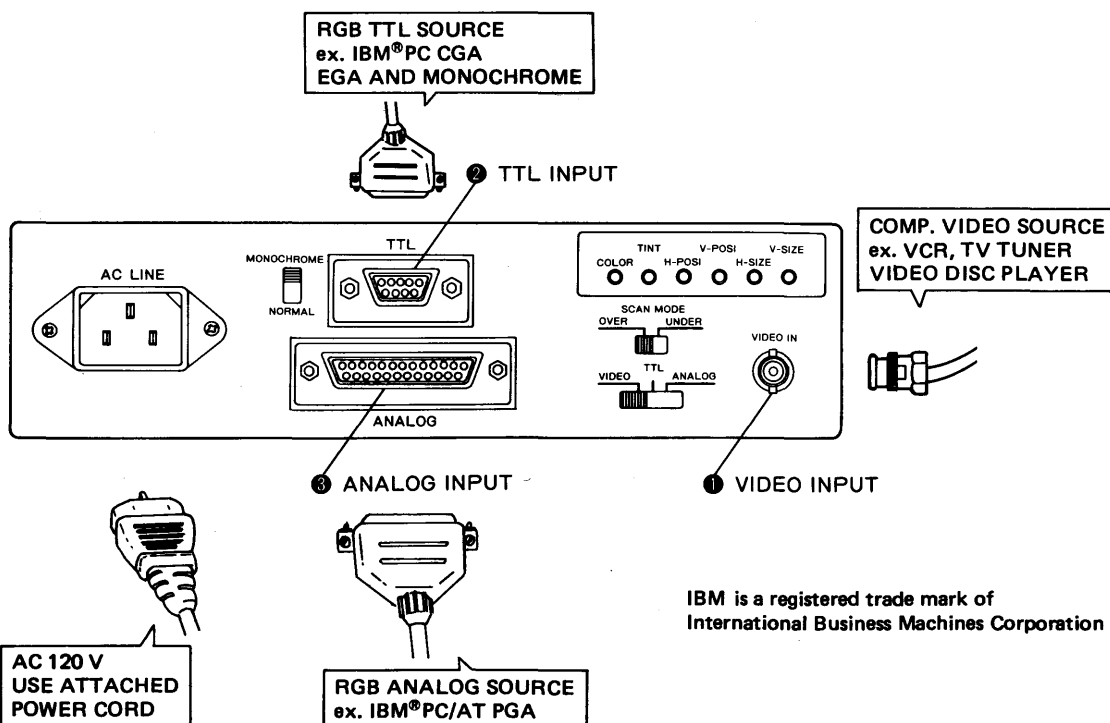
Plug one end of the cable from RGB TTL source into ❷ TTL INPUT on the rear panel.

When you connect to RGB TTL sources, be sure MONOCHROME SWITCH (see P5) is at normal side. You can also connect to IBM® monochrome board when you set MONOCHROME SWITCH at monochrome side.

3. Connecting to RGB Analog source

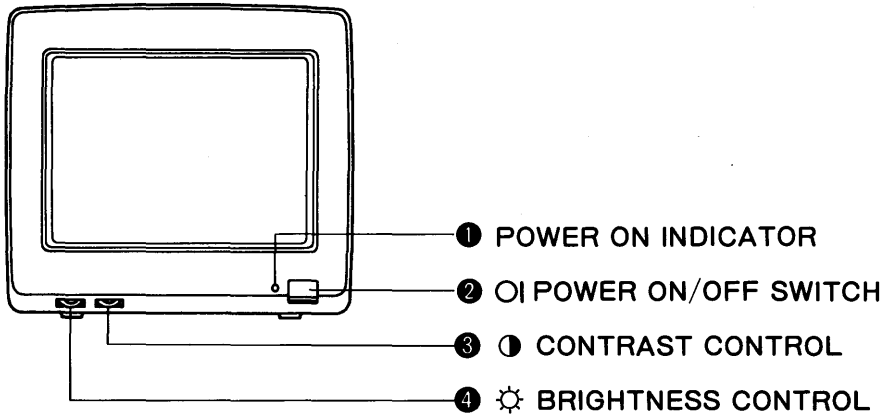
Use D-sub 25 pins connector (option (a), (c) on page 14) to display RGB Analog video pictures from Personal Computer or any other RGB Analog sources.

Plug one end of the cable from RGB Analog source into ❸ ANALOG INPUT on the rear panel.

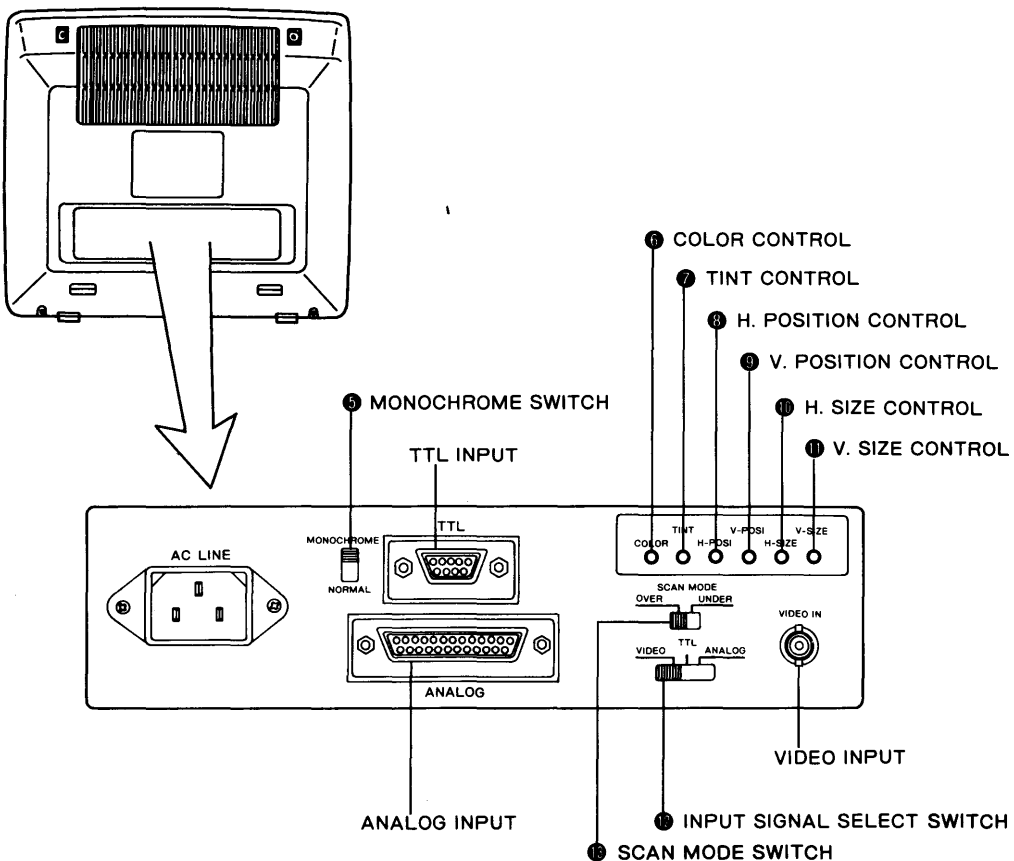


4 CONTROLS-LOCATION AND DESCRIPTION:

FRONT CONTROLS



REAR PANEL CONTROLS



① POWER ON INDICATOR

This indicator illuminates when the power is ON.

② POWER ON/OFF SWITCH

Press to turn the power ON

Press again to turn the power OFF

③ CONTRAST CONTROL

Rotate the control clockwise for more CONTRAST.

Adjust according to brightness at place of use and to your liking.

④ BRIGHTNESS CONTROL

Rotate the control clockwise for more BRIGHTNESS.

Adjust where to be in black in the screen to be in black.

⑤ MONOCHROME SWITCH

Set this switch at the Monochrome side when the unit is to be used in the Monochrome mode of IBM® PC. Set the switch at the "Normal" position when the unit is to be used in the Color mode of a normal personal computer.

Note: In this case, some flickering may occur because of short persistence of the CRT phosphor.

⑥ COLOR CONTROL (When composite Video is to be received)

Adjust to obtain the best color intensity of the picture according to your preference.

Rotate clockwise to increase color intensity and counter-clockwise to decrease color intensity.

Adjust to your preference.

⑦ TINT CONTROL (When composite Video is to be received)

Adjust to obtain the best flesh tones according to your preference.

Rotate clockwise to add green tint to the color tone and counter-clockwise to add red tint to the color tone.

⑧ H. POSITION CONTROL (When a RGB TTL or Analog Signal is to be received)

Adjust by this switch when positions of letters or figures in the screen are to be shifted slightly to right or left side.

⑨ V. POSITION CONTROL (When a RGB TTL or Analog Signal is to be received)

Adjust by this switch when positions of letters and figures in the screen are to be shifted slightly to upper or lower position.

⑩ H. SIZE CONTROL (When a RGB TTL or Analog Signal is to be received)

Adjust by this switch when horizontal sizes of letters or figures in the screen are to be changed.

⑪ V. SIZE CONTROL (When a RGB TTL or Analog Signal is to be received)

Adjust by this switch when vertical sizes of letters or figures in the screen are to be changed.

⑫ INPUT SIGNAL SELECT SWITCH

Input signals are selected by this switch.

Video: The NTSC composite video signal emitted either from the VIDEO INPUT or ANALOG INPUT is displayed.

The switch is to be set at the Video position even when used in the Superimpose mode.

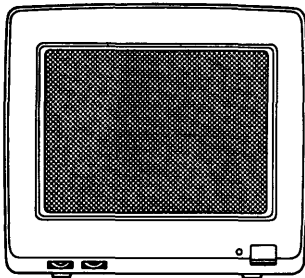
TTL: The RGB TTL signal emitted from the TTL Input Terminal is to be displayed.

ANALOG: The RGB analog signal emitted from the Analog Input Terminal is to be displayed.

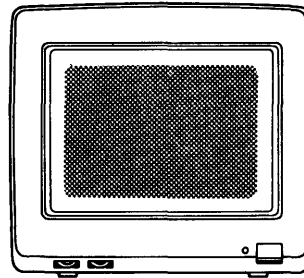
⑬ SCAN MODE SWITCH

This monitor switches itself automatically to the Under-scan phase when horizontal frequency of signal sources such as a personal computer or other is high and to the Over-scan phase when the said frequency is low.

For the medium frequency range of 18 KHz to 25 KHz, a selection can be made between the Under-scan and Over-scan phases as indicated below.



OVER SCANNING SCREEN



UNDER SCANNING SCREEN

5 INPUT SIGNAL SPECIFICATIONS:

1. Composite Video Signal.

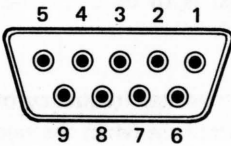
STANDARD (NTSC) video signal.

- a. Input Level 1 V p-p
- b. Input Impedance $.75\Omega$
- c. Signal Polarity Positive
- d. Connector BNC type

2. RGB TTL SIGNAL

TABLE(A)

D-Sub 9 Pin Assignments and Signal Levels



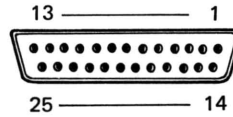
Connector
D-Sub 9-pin

COLOR GRAPHICS TTL 16 COLORS		
	Input signal	Polarity
1	GND	
2	Unused	
3	Red video	TTL positive
4	Green video	TTL positive
5	Blue video	TTL positive
6	Intensity	TTL positive
7	Unused	
8	H-sync	TTL positive
9	V-sync	TTL positive

ENHANCED GRAPHICS TTL 64/16 COLORS		
	Input signal	Polarity
1	GND	
2	Secondary Red video	TTL positive
3	Primary Red video	TTL positive
4	Primary Green video	TTL positive
5	Primary Blue video	TTL positive
6	Secondary green video/Intensity	TTL positive
7	Secondary blue video	TTL positive
8	H-sync	TTL positive
9	V-sync	TTL negative

MONOCHROME		
	Input signal	Polarity
1	GND	
2	Unused	
3	Unused	
4	Unused	
5	Unused	
6	High Intensity	
7	Video	TTL positive
8	H-sync	TTL positive
9	V-sync	TTL negative

VGA
 11, 12, 14 Monitor ID bit 0, 1, 2
 9 key
 15 unused
 GND on color monitor



3. RGB ANALOG SIGNAL

D-Sub 25 Pin assignment and signal levels.

TABLE(B)

Typical Connecting Samples			Pin No.	Signal	Specification	
A	B	C				
X	X		1	Sync. GND		10
X	X		2	Red video	0.6 Vp-p 75 ohms Positive	1
X	X		3	Red video GND		6
X	X		4	Green video	0.6 Vp-p 75 ohms Positive	2
X	X	※	5	Green video GND		7
	X		6	Superimpose control	Low ; 0 ~ 0.4 V High ; 1 ~ 3 V 75 ohms	Composite video RGB Analog High speed switching
	X		7	Superimpose GND		
	X		8	Video input select	Low or open ; BNC Input video High : Pin 9 Video	-
	X		9	Comp. video in	1.0 Vp-p 75 ohms Sync. negative	3
	X		10	Comp. video GND		
	X		11	Comp. video out	1.0 Vp-p 75 ohms Sync. negative	13
	X		12	Comp. video GND		
X			13	PGA mode control	Low; 400 lines, High or open : 480 lines	
X	X		14	Blue video	0.6 Vp-p 75 ohms Positive	3
X	X		15	Blue video GND		
X	X		16	Horizontal Sync.	TTL level	13
X	X		17	Vertical Sync.	TTL level	14
		※	18	TTL color select	Low ; 16 colors, High or open ; depends on EGA card	
			19	NC		
			20	NC		
			21	INT	(+5 V)	
			22	Comp./RGB select	Low ; RGB, High or open : composite	G
			23	Analog/TTL select	Low ; TTL, High or open : Analog	-
			24	Remote	Low ; Mode Switch is invalid	G
			25	GND (shield)		5

Notes: 1. For the mark ※ , make a short circuit.

2. For particulars of Typical Connecting Samples, please refer to the Section of "Using the Special Features".

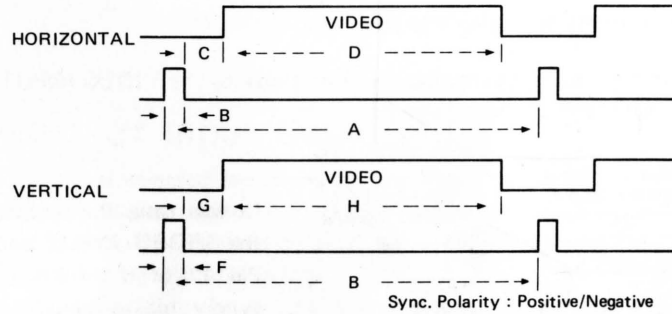
3. For using methods of Pins No. 22, 23 and 24, please refer to the Section of "Using the Special Features".

4. Timing charts

4-1 Composite video signal, Standard (NTSC) composite video signal.

4-2 RGB TTL/Analog signal.

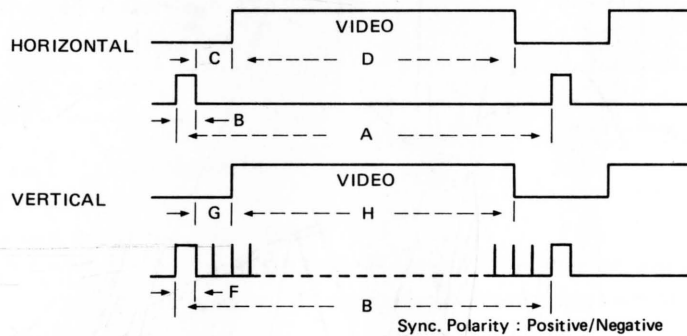
a) SEPARATE SYNC.



TIMING EXAMPLE

	fH	15.75 KHz	18.4 KHz	21.8 KHz	31.25 KHz
Horizontal	A μ s	63.78	54.34	45.75	32
	B μ s	4.45	8.20	4.92	5.12
	C μ s	8.03	1.49	1.65	0.64
	D μ s	44.69	44.21	39.36	25.6
Vertical	B ms	16.68	20.04	16.75	16.67
	F ms	0.19	0.86	0.59	0.51
	G ms	2.11	0.13	0.1	0.31
	H ms	12.75	19.02	16.01	15.45

b) COMPOSITE SYNC.



TIMING EXAMPLE

	fH	30.5 KHz
Horizontal	A μ s	32.7
	B μ s	4.48
	C μ s	2.36
	D μ s	25.66
Vertical	B ms	16.65
	F ms	0.06
	G ms	0.81
	H ms	15.67

6 USING THE SPECIAL FEATURES:

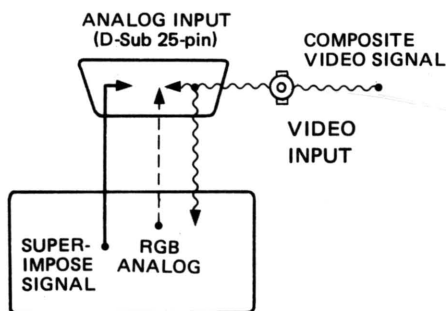
With the following special function equipped, this monitor can be used in versatile ways.

1. Superimpose:

It is possible to superimpose RGB analog signal on a composite video signal, e.g. VCR, TV Tuner etc..

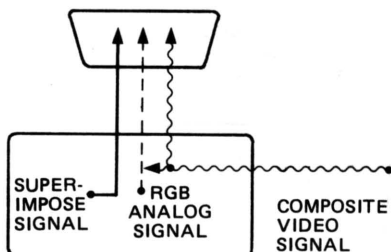
The method is as on the following 2 procedures:

- a) Superimpose by feeding the composite video signal to the VIDEO INPUT and adding on thru the 25-pin terminal the RGB analog signal.



In this case, the composite video signal fed to the VIDEO INPUT and the same signal from Pin 11 of the ANALOG INPUT are used as synchronizing signal for superimposing purposes.

- b) Superimpose by inputting both RGB analog signal and composite video signal from the 25-pin terminal.



In this case, either you short-circuit pins 8 and 21, or elevate pin 8 to high conditions.

Note: Please use the optional (C) cable, Model SC-25F.
Refer to the typical connecting sample "B" on page 9.

2. RGB TTL Color Selecting:

While this monitor is designed so that switching between 16 colors and 64 colors is automatically made corresponding to the EGA mode of IBM®PC/AT when used with the RGB TTL Signal input through the TTL INPUT, if it is preferred to have the 16 colors only, the 16 colors can always be displayed using the following connections:

- Connect between Pins No. 5 and 18 of the D-Sub 25-pin Connector according to the typical connecting samples "C" on Page 9.

3. Remote Control of Input Selecting Signal :

Normally each input signal is selected by means of the Input Signal Select Switch (on page 7), however, it can be also selected electrically.

In this case, each input signal can be selected by putting Pins No. 22, 23 and 24 of the D-Sub 25-pin Connector in conditions shown in the table below.

D-SUB 25 Pin ASSIGNMENT

Pin No.			SPECIFICATION
22	23	24	
0	0	0	DEPEND ON I.S.S.S
0	0/G	G	SUPERIMPOSE/COMPOSITE
G	0	G	RGB ANALOG
G	G	G	RGB TTL

Note: I.S.S.S → Input Signal Select Switch
0 → OPEN
G → GROUND



GENERAL SPECIFICATIONS:

CRT		13" Viewable 90 degree deflection 0.31 mm trio dot pitch Super high contrast glass, Non-glare P 22, Medium-short persistence
Input Signal	Comp. video RGB video Sync.	NTSC TTL Positive 16/64 Colors Analog 0.6 Vp-p positive Separate sync. TTL \pm HD, \pm VD Comp. sync. TTL \pm HD/VD
Connector		BNC Jack D-Sub 9-pin D-Sub 25-pin
Synchronization	Horizontal Vertical	15.6 KHz to 35 KHz (Automatically) 45 Hz to 75 Hz (Automatically)
Resolution	Horizontal Vertical	RGB TTL/ANALOG Comp. Video (800 dots) (300 dots) (560 lines) (500 lines)
Display Area	Horizontal Vertical	240 mm 176 mm
Video Band Width		30 MHz
Misconvergence		Less than 0.4 mm (Center)
Power Supply		120 V, 60 Hz
Power Consumption		90 W
Dimensions		362 (W) x 328 (H) x 383 (D) mm
Weight		12.8 kg
Controls	Front	Contrast Brightness Power switch
	Back	Input signal switch Scan mode switch Monochrome switch Color saturation Tint Horizontal position Vertical position Horizontal size Vertical size

8 OPTIONS:

① Various Input Cables:

(a) Model SC-259

25-pin/9-pin:

This cable corresponds to the PGA board of IBM® PC/AT.

(Refer to the Typical Connecting Samples "A" on Page 9.)

(b) Model SC-9F

9-pin/Free:

Use this cable when connecting this unit to other RGB TTL equipment.

Since one end of the cable is connected to a 9-pin connector, connect the other end to a connector appropriate for the unit. Make sure in this case that you made no wrong connection.

(c) Model SC-25F

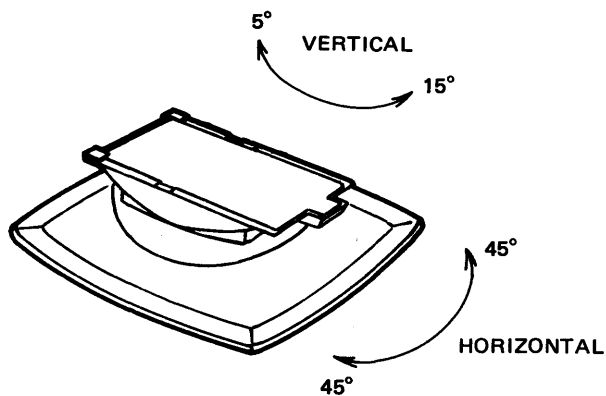
25-pin/Free:

Use this cable when connecting to other equipment relating to video signals. Since one end of the cable is connected to a 25-pin connector, connect the other end to a connector appropriate for your use. As was explained under the Item "Specifications for Input Signal", extremely versatile functions are available.

Since there are so many leads to be connected, please make sure that you made no wrong connection.

② Tilt Swivel Base:

Model TS-1371



 **MITSUBISHI ELECTRONICS AMERICA, INC.**
PERIPHERALS DIVISION

991 Knox Street
Torrance, California 90502
(213) 515-3993

1050 East Arques Arques Avenue
Sunnyvale, California 94086
(408) 730-5900

808 Bierrmann Court
Mr. Prospect, Illinois 60056
(312) 298-9223

200 Unicorn Park Drive
Woburn, Massachusetts 01801
(617) 938-1220

2105 Luna Road
Suite 320
Carrollton, Texas 75006
(214) 241-5300

Two University Plaza
Suite 402
Hackensack, New Jersey 07601
(201) 488-1001

6575 The Corners Parkway
Suite 100
Norcross, Georgia 30092
(404) 662-0758

Highwood Office Center
15612 Highway 7
Suite 243
Minnetonka, Minnesota 55345
(612) 938-7779