LCD Monitor

Instructions for Use

CE

LMD-1950MD

Owner's Record

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

Model No. _____
Serial No. _____

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

THIS APPARATUS MUST BE EARTHED.

To disconnect the main power, unplug the AC plug.

WARNING
When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power cord to socket-outlet which must be provided near the unit and easily accessible.
If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power cord.

In the event of a malfunction or when maintenance is necessary, consult an authorized Sony dealer.

This unit contains substances which can pollute the environment if disposed carelessly. Please contact our nearest representative office or your local environmental office in case of disposal of this unit.

For the customers in Canada
This unit has been certified according to Standard CSA C22.2 NO.601.1.

FOR THE CUSTOMERS IN THE USA
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.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This product contains mercury. Disposal of this product may be regulated if sold in the United States. For disposal or recycling information, please contact your local authorities or the Electronics Industries Alliance (http://www.eiae.org).

For the customers in the U.S.A. and Canada
Model LMD-1950MD is Non-Patient Equipment. This unit can not be used in the vicinity of patients.

* Patient Vicinity
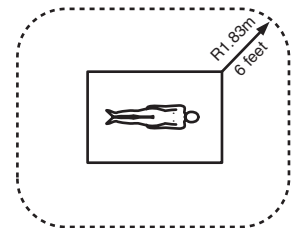
Important safeguards/notices for use in the medical environments

1. All the equipment connected to this unit shall be certified according to Standard IEC60601-1, IEC60950-1, IEC60065 or other IEC/ISO Standards applicable to the equipment.
2. When this unit is used together with other equipment in the patient area*, the equipment shall be either powered by an isolation transformer or connected via an additional protective earth terminal to system ground unless it is certified according to Standard IEC60601-1 and IEC60601-1-1.

* Patient Area
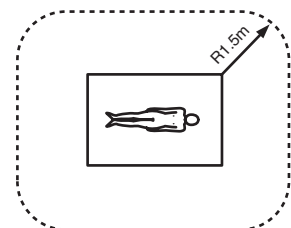
3. The leakage current could increase when connected to other equipment.

4. The operator should take precautions to avoid touching the rear panel input and output circuitry and the patient at the same time.
5. Model LMD-1950MD is a monitor intended for use in a medical environment to display pictures from cameras or other systems. These models are nonpatient care equipment with respect to the requirement of leakage current.

FOR CUSTOMERS IN EUROPE

This equipment has been found to comply with limits for a Class B device pursuant to EN60601-1-2. However, if this equipment does cause harmful interference to other devices, which can be determined by turning this equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Increase the separation between the equipment and other devices.
- Connect the equipment into an outlet on a circuit different from that to which other devices are connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

When you dispose of the unit or accessories, you must obey the law in the relative area or country and the regulation in the relative hospital.

Symbols on the unit

Symbol	Location	This symbol indicates
	Bottom	Power switch. Press to turn the monitor on.
	Bottom	Power switch. Press to turn the monitor off.
	Bottom	The equipotential terminal which brings the various parts of a system to the same potential.
	Bottom	Functional earth terminal
	Front	Brightness control
	Front	Contrast control
	Front	Key inhibit The setting are locked so that they cannot be changed.

Warning on power connection
Use a proper power cord for your local power supply.

	The United States	Canada	Continental Europe
Plug type	HOSPITAL GRADE	HOSPITAL GRADE	LP-34A
Female end	E41395	LL33182	LS-60
Cord type	E41395-A	LL76662	H05VV-F
Rated Voltage & Current	10A/125V	10A/125V	10A/250V
Safety approval	UL	CSA	VDE

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Precaution

On Safety

- Operate the unit on 100-240 V AC only.
- The nameplate indicating operating voltage, etc. is located on the AC adaptor.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for several days or more.
- To disconnect the AC power cord, pull it out by grasping the plug. Never pull the cord itself.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

On Installation

- Prevent internal heat build-up allowing adequate air circulation.
  Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not place the monitor near equipment which generates magnetism, such as a transformer or high voltage power lines.

About the LCD Display Panel

- Although the LCD display panel is made with high-precision technology, black dots may appear or bright points of light (red, blue, or green) may appear constantly on the LCD screen. And a color shade or bight shade may appear according to a viewing angle. These are structural properties of the LCD panel and are not malfunctions.
- The LCD screen is made with high-precision technology and more than 99.99% of the picture element is intact. However, some of the picture element may not appear or some of the picture element may appear constantly.
- Do not leave the LCD screen facing the sun as it can damage the LCD screen. Take care when you place the unit by a window.
- Do not push or scratch the LCD monitor's screen. Do not place a heavy object on the LCD monitor's screen. This may cause the screen to lose uniformity.

- If the unit is used in a cold place, a residual image may appear on the screen. This is not a malfunction. When the monitor becomes warm, the screen returns to normal.
- If a still picture is displayed for a long time, a residual image may appear. The residual image will eventually disappear.
- The screen and the cabinet become warm during operation. This is not a malfunction.

About the Fluorescent Tube

- A specially designed fluorescent tube is installed as the lighting apparatus for this unit. If the LCD screen becomes dark, unstable or does not turn on, consult your Sony dealer.

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 benzine.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ball-point pen or screwdriver. This type of contact may result in a scratched picture panel.
- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti static solution or similar additive as this may scratch the screen's coating.

Disposal of the Unit

- Do not dispose of the unit with general waste.
  Do not include the monitor with household waste.
- The fluorescent tube includes mercury. Dispose of the monitor in accordance with the regulations of your local sanitation authority.

Recommendation to Use more than One Unit

- As problems can occasionally occur for the monitor, when the monitor is used for safety control of personnel, assets or stable picture, or for emergencies, we strongly recommend you use more than one unit or prepare a spare unit.

On Repacking

• Do not throw away the carton and packing materials. They make an ideal container which to transport the unit.

If you have any questions about this unit, contact your authorized Sony dealer.

On Fan Error

• The fan for cooling the unit is built in. When the "FAN ERROR" message is displayed, turn off the power and contact an authorized Sony dealer.

Features

Compliance with medical safety standards in America, Canada and Europe

UL60601-1 for America, CSA C22.2 No.601.1 for Canada and EN 60601-1 for Europe have been obtained for this monitor.
The monitor is designed for use in the medical treatment field, with the sheet switch, screen protect panel, etc.

Cabinet design with no heat vents

LMD-1950MD has been designed so that there are no air vents for expelling heat from the unit. This design prevents blood, chemical solutions, and dirt, which could cause a trouble, from entering the unit. No dirt accumulating in the main unit can come out.

Picture

Sophisticated I/P (Interlace to Progressive) Conversion

The LMD-1950MD provides sophisticated I/P conversion with Sony's original X-Algorithm technology. This technology combines the pixels above, below and in the diagonal direction of the moving picture part, and then inserts a natural pixel.
The direct result is much smoother image reproduction for both moving and static picture areas.

Fully digital 10-bit signal processing circuit

As well as digital signals, all signals including analog signals are converted into digital signals. All signals are processed using a fully digital 10-bit processing circuit so that an image is produced in smooth gradation without any deterioration of quality.

Two color system available

The monitor can display NTSC and PAL signals by connecting this unit.

Auto chroma/phase function

The chroma and phase of the decoder are automatically adjusted with the auto chroma phase function.

High image-quality/high-resolution SXGA LCD panel

An SXGA high-resolution (1280 × 1024 dots) panel and high brightness/ultra-wide field of view technology enable you to use the monitor under various lighting conditions and in numerous ways (installing on wall, using several monitors to view an image, and so on.). Because a color filter with wide-color reproduction and LCD materials with high response speed are used, the motion picture of the video signal is displayed clearer. This monitor also performs sampling of signals at high frequencies and provides a high resolution of 700 TV scanning lines or more during the RGB/COMPONENT signal (480/60I, 575/50I) input.

Input

Accepts analog RGB input signals [*1]

Adopting the scan converter allows this monitor to detect VGA, SVGA, XGA and SXGA analog RGB signals input to the HD15 input connector.

Accepts DVI-D (digital) input signals [*1]

Adopting the scan converter allows this monitor to detect VGA, SVGA, XGA and SXGA digital computer signals input to the DVI input connector.
To view SXGA signals when the DVI input is selected, use the cable within 3 m (118 ^{1}/8 inches) in length.

[*1] For acceptable formats, refer to "About the preset signal" on pages 29 and 30.

Optional slot for the video signal

Two optional input adaptors can be attached. The composite, Y/C, component, analog RGB or SDI signal can be input depending on the input connectors of the board to be used.

Multi-format [*2]

NTSC or PAL color system or DTV format, such as 720P, 1080I, etc. can be selected automatically.

[*2] For acceptable formats, refer to "Video signal formats" on page 28.

External sync input

The unit can be operated on the sync signal supplied from an external sync generator.

Functions

APA (Auto Pixel Alignment) function

You can display pictures from the HD 15 input connector in the appropriate picture by simply pressing the APA key.

Automatic termination (connector with 〰 mark only)

The input connector is terminated internally at 75 ohms when nothing has been connected to the output connector. If a cable is connected to the output connector, the internal terminal is automatically released and the signals input to the input connector are output to the output connector (loop-through).

Select color temperature and gamma mode

You can select the color temperature from among four (HIGH, LOW, LOW2, LOW3) settings and gamma mode from among five settings. You can also adjust the color temperature to the appropriate setting in "USER".

Aspect setting

You can set the monitor to 4:3 or 16:9 display mode according to the input signal.

Scan function

You can select the display from among "NORMAL", "UNDER", "OVER", "FULL", "ZOOM" and "NATIVE" (1080I and 720P only)" except the HD 15 and DVI input signals.

Select language display

You can select your language for the display from seven languages - English, German, French, Italian, Spanish, Japanese and Chinese.

Power saving function

The monitor enters into power saving mode to reduce the power consumption when no signal is input.

Key inhibit function

You can inhibit the key to prevent missing an operation.

User memory function

You can save the 20 picture settings with the name. The user memory data can be saved or loaded between the monitor and the equipment (PC, etc.) connected in serial remote mode.

Two kinds of ground terminals

Two kinds of ground terminals are built into the monitor to equal the electric potential.

External remote control function

You can directly select the input signal, aspect, etc. by operating the connected equipment.
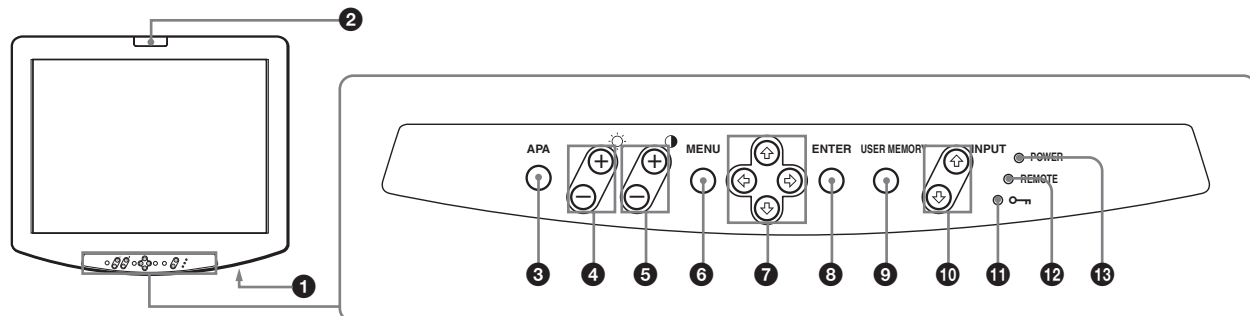
Other

Optional stand

It is more convenient to install the monitor on a desk by using the optional stand (SU-560).

Location and Function of Parts and Controls

Front Panel

❶ ⊙/Ö (Power) switch
Press ⊙ to turn on the power and Ö to turn off the
power. When the power is turned on, the POWER
indicator lights.

❷ Tally lamp
Turning this lamp on or off can be done with a Remote
Control.
For details, refer to "Pin assignment" on page 27.

❸ APA (Auto Pixel Alignment) key
Adjust a picture clearest automatically while a signal is
input from the HD15 input connector. To adjust the
picture further for finer picture though the picture is
adjusted automatically, see the "DOT PHASE" and
"PITCH" on page 22.
Press the MENU key to stop the APA operation.
The APA function does not work when the menu is
displayed.

❹ ☼ (Brightness) +/– keys
+: press for more brightness.
–: press for less brightness.
The value is reset to the default setting by pressing the +
and – keys simultaneously.

❺ ◗ (Contrast) +/– keys
+: press to make the contrast stronger.
–: press to make the contrast weaker.
The value is reset to the default setting by pressing the +
and – keys simultaneously.

❻ MENU key
Press to display the on-screen menu.
Press again to clear the menu.
The USER SERVICE menu (on page 25) appears by
keeping the MENU key pressed.

*For menu operations, refer to "Using the Menu" on
page 16.*

❼ Arrow keys (↑/↓/←/→)
Select the menu or to make various adjustments.

❽ ENTER key
Press to decide a selected item in the menu.

❾ USER MEMORY key
Press to load the picture settings saved in the USER
MEMORY menu (on page 23).

❿ INPUT ↑/↓ keys
Select the input signal. Each time you press the ↑ key,
the input signal switches as follows. When the ↓ key is
pressed, the input signal switches in reverse order.

```
COMPOSITE   ←    HD15
    ↓               ↑
   Y/C             DVI
    ↓               ↑
   RGB          OPTION B-2
    ↓               ↑
COMPONENT     OPTION B-1
    ↓               ↑
OPTION A-1  →  OPTION A-2
```
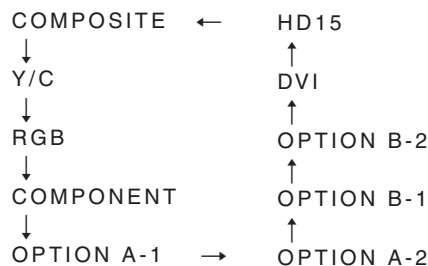
- The signal set to "OFF" in the INPUT SELECT menu is not selected with the INPUT key and skipped. To select the signal, select "ON".
- When an input adaptor is not attached, "OPTION" is skipped automatically.

⓫ ⊶ (Key inhibit) indicator
When the key inhibit function works, the green indicator lights.

For the key inhibit function, refer to "REMOTE menu" on page 22 and "KEY INHIBIT menu" on page 24.

⓬ REMOTE indicator
When the serial remote (RS-232C) is operable, the green indicator lights.

For the remote function, refer to "REMOTE menu" on page 22.

⓭ POWER indicator
When the power is turned on, the indicator lights in amber and then in green.
This indicator lights in amber in power saving mode.

Input Signals and Adjustable/Setting Items

Item	Video*1, Y/C*1	B & W*1	Component*2 SD	Component*2 HD	RGB*2 SD	RGB*2 HD	SDI D1*3	SDI HD*4	DVI	HD15
CONTRAST	○	○	○	○	○	○	○	○	○	○
BRIGHT	○	○	○	○	○	○	○	○	○	○
CHROMA	○	×	○	○	×	×	○	○	×	×
PHASE	○ (NTSC)	×	×	×	×	×	×	×	×	×
APERTURE	○	○	○	○	×	×	○	○	×	×
COLOR TEMP	○	○	○	○	○	○	○	○	○	○
AUTO CHROMA/ PHASE	○	×	○	○	×	×	○	○	×	×
COMP LEVEL	×	×	○ (480/60I)	×	×	×	×	×	×	×
NTSC SETUP	○ (NTSC)	○ (480/60I)	×	×	×	×	×	×	×	×
GAMMA	○	○	○	○	○	○	○	○	○	○
SCAN*5	○	○	○	○	○	○	○	○	×	×
ASPECT	○	○	○	○*6	○	○*6	○	×	×	×
APA	×	×	×	×	×	×	×	×	×	○
SIZE	×	×	×	×	×	×	×	×	○	○
SHIFT	○	○	○	○	○	○	○	○	○	○
DOT PHASE	×	×	×	×	×	×	×	×	×	○
PITCH	×	×	×	×	×	×	×	×	×	○
POWER SAVING	○	○	○	○	○	○	○	○	○	○
PIC DELAY MIN*7	○	○	○	○	○	○	○	○	×	×

○ : Adjustable/can be set
× : Not adjustable/cannot be set

*1 The signal can be input without an input adaptor. When a BKM-227W is attached, a number of the input is increased.
*2 The signal can be input without an input adaptor. When a BKM-229X is attached, a number of the input is increased.
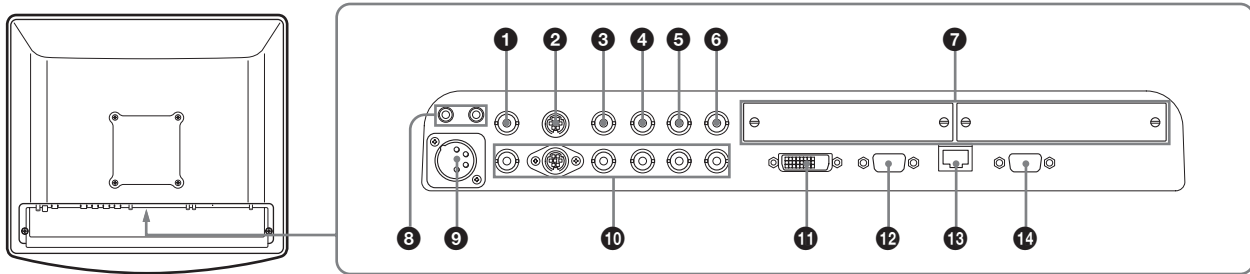*3 When a BKM-220D or BKM-243HS is attached, the signal can be input.
*4 When a BKM-243HS is attached, the signal can be input.
*5 You may not be able to set this item due to the input signal. For details, see "SCAN" on page 20.
*6 The signal can be input with 480/60P or 576/50P format.
*7 Available only interlace signal.

Bottom

❶ **COMPOSITE input connector (BNC)**
Input connector for composite signals.

❷ **Y/C input connector (4-pin mini-DIN)**
Input connector for Y/C signals.

❸ **G/Y input connector (BNC)**
Input connector for G of RGB and component Y (luminance) signals.

❹ **B/P$_B$ input connector (BNC)**
Input connector for B of RGB signals and P$_B$ (blue color difference) of component signals.

❺ **R/P$_R$ input connector (BNC)**
Input connector for R of RGB signals and P$_R$ (red color difference) of component signals.

❻ **EXT SYNC (External sync) input connector (BNC)**
When this unit operates on an external sync signal, connect the reference signal from a sync generator to this connector.
Select "EXT" in "SYNC" of the USER CONFIG menu (on page 21) to use the sync signal through this connector.

Note

When inputting a video signal with the jitters, etc. the picture may be disturbed. We recommend using the TBC (time base corrector).

❼ **Optional input slots**
An optional input adaptor can be attached according to your requirements. Press the INPUT key to select the signals.

❽ **▽/⏚ (Equipotential/Function Earth) terminal**
▽ (equipotential) terminal
Connects the equipotential plug.
⏚ (function earth) terminal
Connects the earth cable.

❾ **DC IN socket**
Connect the supplied DC connector of the AC adaptor.

❿ **Loop-through output connectors**
The signals input to the input connectors (❶, ❷, ❸, ❹, ❺ and ❻) are output here. Connect to the equipment according to the input signal.
When the cable is connected to this connector, the 75-ohm termination of the input automatically released, and the signal from the input connector is output from this connector.

⓫ **DVI input connector (DVI-D)**
DVI Rev.1.0 applicable digital RGB signal is input.
To view SXGA signals when the DVI input is selected, use the cable within 3 m (118 ^{1}/8 inches) in length.

⓬ **HD15 input connector (HD D-Sub 15 pin)**
An analog RGB video signal (0.7 Vp-p, positive polarity) and sync signal are input.
The Plug & Play function corresponds to DDC2B.

⓭ PARALLEL REMOTE terminal (modular connector, 8-pin)

Connects a parallel switch and controls the monitor externally.

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this modular connector.

For details on the pin assignment and factory setting function assigned to each pin, see "Pin assignment" on page 27.

⓮ SERIAL REMOTE (RS-232C) terminal (D-Sub 9 pin)

Connects to the RS-232C control connector on external equipment connected to the monitor. The monitor can be operated according to control commands sent from external equipment connected to it.

For details on the pin assignment and function assigned to each pin, see "Pin assignment" on page 27.

For details, refer to the Interface Manual for Programmers (saved in the supplied CD-ROM, Japanese and English only).
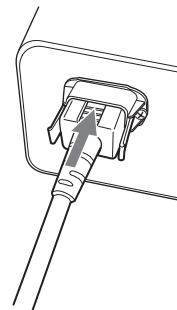
Connecting the AC Power Cord

Connect the supplied AC power cord as illustrated. Two kinds of AC plug holders are supplied with this unit. Use the AC plug holder that fits the AC power cord most securely.
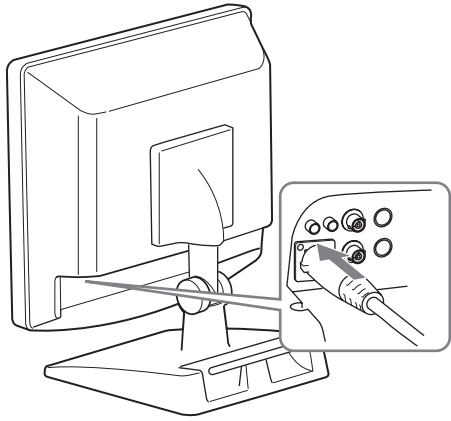
1 Plug the AC power cord into the AC IN socket on the AC adaptor. Then, attach the AC plug holder to the AC power cord.

AC IN socket

AC power cord

AC plug holder (Supplied)
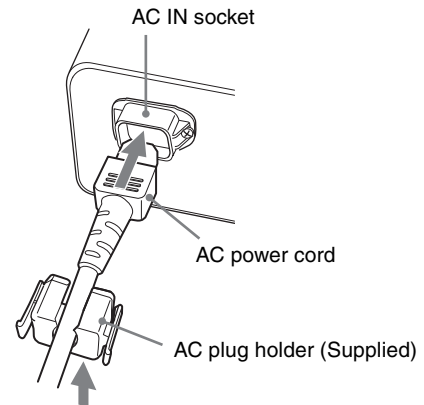
2 Slide the AC plug holder over the cord until it locks.

3 Insert the DC IN connector into the DC IN socket on the bottom of this unit until it locks.

To remove the AC power cord

First, pull out the AC plug holder while pressing the lock levers.
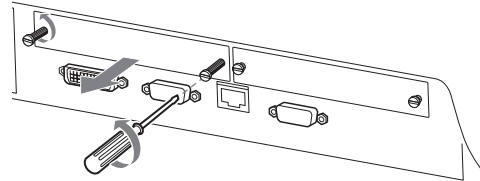Next, pull out the DC IN connector from the DC IN socket while pressing the lock lever.
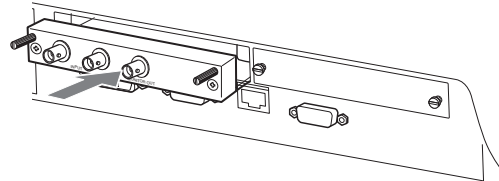
Attaching the Input Adaptor

Before attaching the input adaptor, disconnect the power cord.
Attach the input adaptor to the optional input slot after removing the panel of the slot.
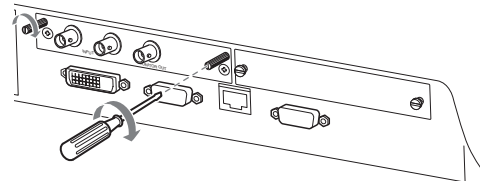
1 Remove the panel of the optional input slot.

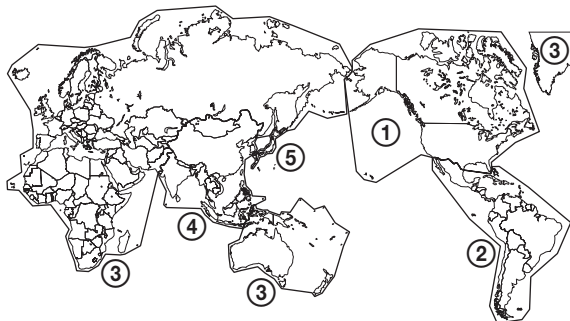**2** Insert the input adaptor into the slot.

3 Tighten the screws.

Selecting the Default Settings

When you turn on the unit for the first time after purchasing it, select the area where you intend to use this unit from among the options.

The default setting values for each area

		COLOR TEMP	COMP LEVEL	NTSC SETUP
①NORTH AMERICA		Low	BETA7.5	7.5
②LATIN AMERICA PAL&PAL-N AREA	ARGENTINA	Low	SMPTE	0
	PARAGUAY	Low	SMPTE	0
	URUGUAY	Low	SMPTE	0
NTSC&PAL-M AREA	OTHER AREA	Low	BETA7.5	7.5
③AFRICA AUSTRALASIA EUROPE MIDDLE-EAST		Low	SMPTE	0
④ASIA EXCEPT JAPAN	NTSC AREA	Low	BETA7.5	7.5
	PAL AREA	Low	SMPTE	0
⑤JAPAN		High	SMPTE	0

2~4
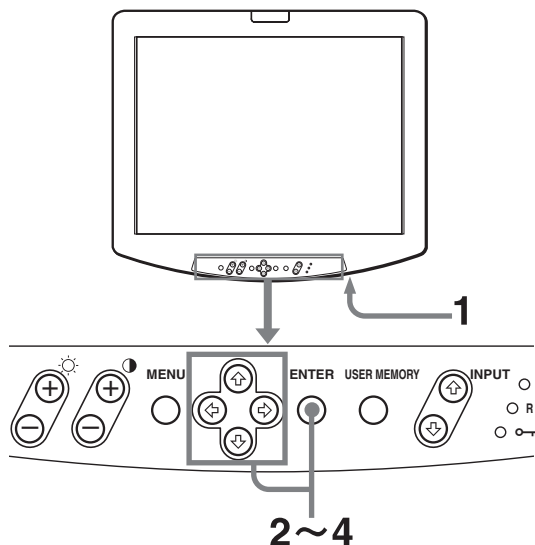
1 Press the POWER switch to turn on the unit.
The power is turned on and the SELECT SETTING screen appears.

①North America
②Latin America
③Africa Australia/New Zealand, Europe, Middle East, Russia
④Asia Except Japan
⑤Japan
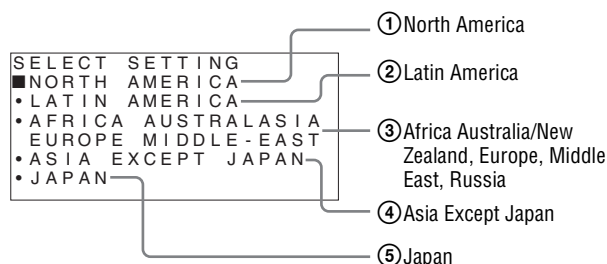
2 Press the ⬆ or ⬇ key to select the area where you intend to use the unit and press the ENTER key.

If you select either ①, ③ or ⑤
The confirmation screen is displayed. Confirm the selected area. When the setting is wrong, press the MENU key to return to the previous screen.

If you select either ② or ④
One of the following screens appears. Press the ⬆ or ⬇ key to narrow the area further and then press the ENTER key.
The confirmation screen is displayed. Confirm the selected area. When the setting is wrong, press the MENU key to return to the previous screen.
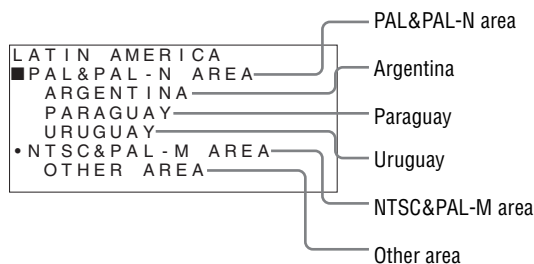
② If LATIN AMERICA is selected:

PAL&PAL-N area
Argentina
Paraguay
Uruguay
NTSC&PAL-M area
Other area

④ **If ASIA EXCEPT JAPAN is selected:**
Customers who will use this unit in the shaded areas shown in the map below should select NTSC AREA.
Other customers should select PAL AREA.


```
A S I A   E X C E P T   J A P A N
■ N T S C   A R E A                    NTSC area

• P A L   A R E A                      PAL area
```

3 Press the ENTER key.
The area setting is executed and the COMPLETED screen is displayed.

```
C O M P L E T E D

N O R T H   A M E R I C A

[ E N T E R ] E X I T   M E N U
[ M E N U ] U N D O   S E T T I N G S
```

Press the MENU key to return to previous screen and undo settings.

4 Press the ENTER key.
The COMPLETED screen is disappeared and the default setting is completed.

Note

When you have selected the wrong area, set the following items using the menu.
• COLOR TEMP (on page 19)
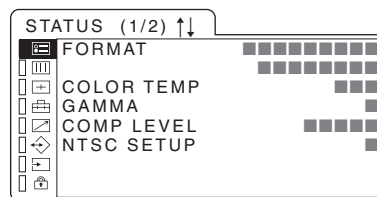• COMP LEVEL (on page 25)
• NTSC SETUP (on page 25)
See "The default setting values for each area" (on page 14)
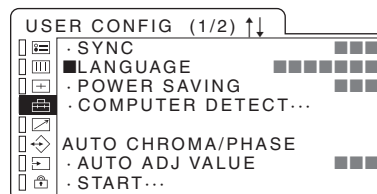
Selecting the Menu Language

You can select one of seven languages (English, German, French, Italian, Spanish, Japanese, Chinese) for displaying the menu and other on-screen displays. "ENGLISH (English)" is selected in the default setting. The current settings are displayed in place of the ■ marks on the illustrations of the menu screen.
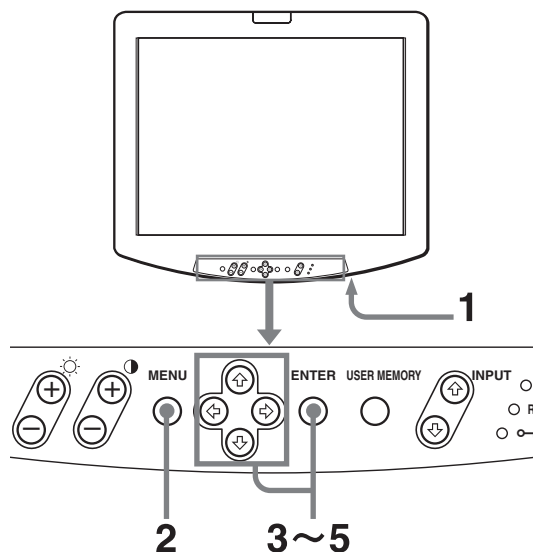
1 Press the POWER switch to turn on the unit.

2 Press the MENU key.
The menu appears.

```
STATUS (1/2) ↑↓
 FORMAT          ■■■■■■■■■
                 ■■■■■■■■
 COLOR TEMP            ■■■
 GAMMA                   ■
 COMP LEVEL       ■■■■■   ■
 NTSC SETUP              ■
```

3 Press the ↑ or ↓ key to select the USER CONFIG 1/2 (User Configuration 1/2) menu, then press the ➡ or ENTER key.
The setting items (icons) in the selected menu are displayed in yellow.

```
USER CONFIG (1/2) ↑↓
 · SYNC                 ■■■
 ■ LANGUAGE        ■■■■■■■
 · POWER SAVING         ■■■
 · COMPUTER DETECT···
 ·
 AUTO CHROMA/PHASE
 · AUTO ADJ VALUE       ■■■
 · START···
```

4 Press the ↑ or ↓ key to select "LANGUAGE", then press the ➡ or ENTER key.
The selected item is displayed in yellow.

5 Press the ↑ or ↓ key to select a language, then press the ENTER key.
The menu changes to the selected language.
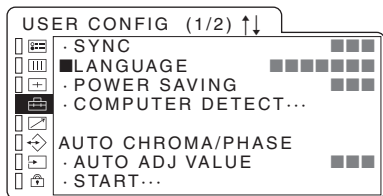
```
USER CONFIG (1/2) ↑↓
 ▤  · SYNC              ■ ■ ■
 ▥  ■LANGUAGE     ■ ■ ■ ■ ■ ■
 ⊞  · POWER SAVING      ■ ■ ■
 ⛉  · COMPUTER DETECT···
 ◿
 ◈  AUTO CHROMA/PHASE
 ⊡  · AUTO ADJ VALUE    ■ ■ ■
 🔒  · START···
```

To clear the menu

Press the MENU key.
The menu disappears automatically if a key is not pressed for one minute.

Using the Menu

The unit is equipped with an on-screen menu for making various adjustments and settings such as picture control, input setting, set setting change, etc. You can also change the menu language displayed in the on-screen menu.

To change the menu language, see "Selecting the Menu Language" on page 15.

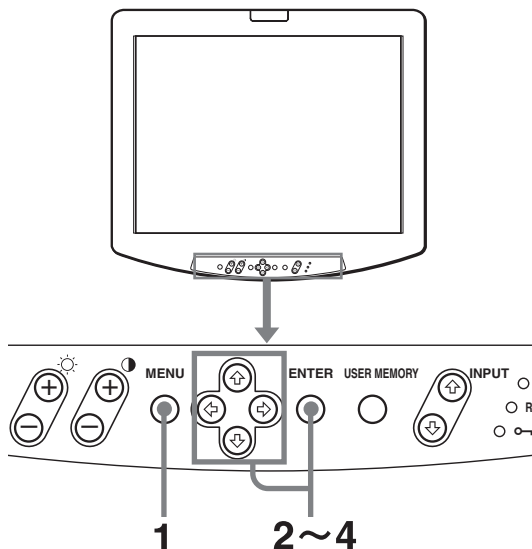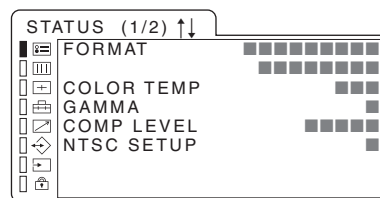The current settings are displayed in place of the ■ marks on the illustrations of the menu screen.

1 Press the MENU key.
The menu appears.

```
STATUS (1/2) ↑↓
▌▤  FORMAT          ■ ■ ■ ■ ■ ■ ■ ■
 ▥               ■ ■ ■ ■ ■ ■ ■ ■
 ⊞  COLOR TEMP            ■ ■ ■
 ⛉  GAMMA                     ■
 ◿  COMP LEVEL         ■ ■ ■ ■ ■
 ◈  NTSC SETUP                ■
 ⊡
 🔒
```

2 Use the ↑ or ↓ key to select a menu, then press the ➡ or ENTER key.
The menu icon presently selected is shown in yellow and setting items are displayed.

```
USER CONTROL
 ▤  ■CHROMA              ■ ■
 ▥  · PHASE              ■ ■
 ⊞  · APERTURE         ■ ■ ■
 ⛉  · GAMMA                ■
 ◿  · ASPECT           ■ ■ ■
 ◈  · SCAN         ■ ■ ■ ■ ■ ■
 ⊡  · PIC DELAY MIN    ■ ■ ■
 🔒
```
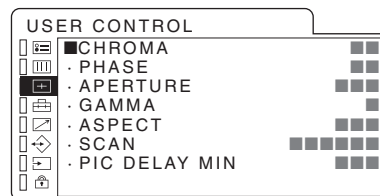
3 Select an item.

Use the ↑ or ↓ key to select the item, then press the → or ENTER key.

The item to be changed is displayed in yellow.

> **Note**
>
> If the menu consists of multiple pages, press ↑ or ↓ to go to the desired menu page.

4 Make the setting or adjustment on an item.

When changing the adjustment level:
To increase the number, press the ↑ key.
To decrease the number, press the ↓ key.
Press the ENTER key to confirm the number.

When changing the setting:
Press the ↑ or ↓ key to change the setting.
Press the ENTER key to confirm the setting.

> **Note**
>
> An item displayed in blue cannot be adjusted or set.

To clear the menu

Press the MENU key.
The menu disappears automatically if a key is not pressed for one minute.

About the memory of the settings

The settings are automatically stored in the monitor memory.

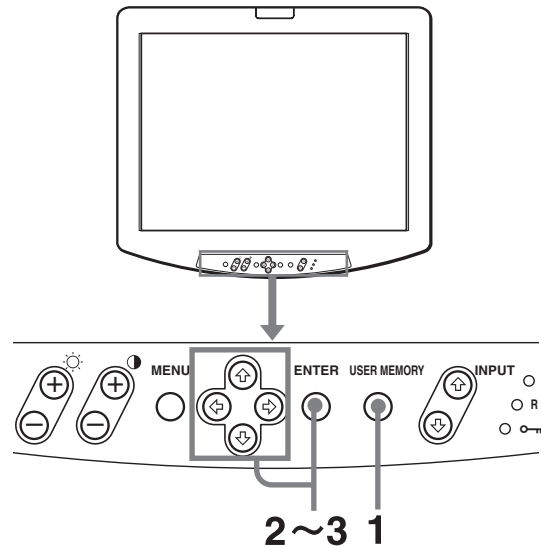## To reset items that have been adjusted

Pressing the ↑ and ↓ keys simultaneously while you are adjusting any of the menu items resets the menu item to the previous setting.
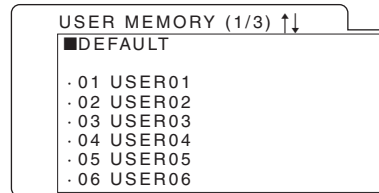
> **Note**
>
> The operation may be different from the explanation above. Follow the explanation displayed at the lower part of the menu screen.

Loading USER MEMORY

You can load the picture settings saved in the USER MEMORY menu (on page 23).

2～3 1

1 Press the "USER MEMORY" key.
The USER MEMORY menu appears.

```
USER MEMORY (1/3) ↑↓
■DEFAULT

·01 USER01
·02 USER02
·03 USER03
·04 USER04
·05 USER05
·06 USER06
```

2 Select the memory number.
← or → key: to move the page
↑ or ↓ key: to select the memory number

3 Press the ENTER key.
After loading the picture settings from the selected memory, the menu disappears.

To stop selecting the memory
Press the USER MEMORY key.
The USER MEMORY menu disappears.

To reset the settings
Select "DEFAULT", then press the ENTER key.

Adjustment Using the Menus

Items

▤ STATUS (the items indicate the current settings.) (on page 19)

For the video input
FORMAT
COLOR TEMP
GAMMA
COMP LEVEL
NTSC SETUP
Model name and serial number
OPTION A and serial number
OPTION B and serial number

For the DVI/HD15 input
FORMAT
fH
fV
COLOR TEMP
GAMMA
Model name and serial number
OPTION A and serial number
OPTION B and serial number

▥ COLOR TEMP (on page 19)
COLOR TEMP

⊞ USER CONTROL (on page 20)
CHROMA
PHASE
APERTURE
GAMMA
ASPECT
SCAN
PIC DELAY MIN

⊞ USER CONFIG (on page 21)

For the video input
SYNC
LANGUAGE
POWER SAVING
COMPUTER DETECT
AUTO CHROMA/PHASE
SHIFT H
SHIFT V
RESET

For the DVI/HD15 input
SYNC
LANGUAGE
POWER SAVING
COMPUTER DETECT
AUTO CHROMA/PHASE
SIZE H
SIZE V
SHIFT H
SHIFT V
DOT PHASE
PITCH
RESET

◿ REMOTE (on page 22)
PARALLEL REMOTE
SERIAL REMOTE

◈ USER MEMORY (on page 23)
01~20

⊡ INPUT SELECT (on page 24)
ALL RESET
STANDARD INPUT
OPTION

⌂ KEY INHIBIT (on page 24)
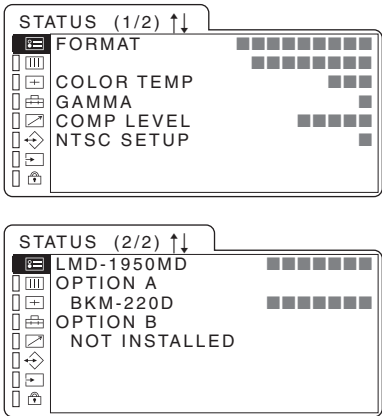KEY INHIBIT

⊟ USER SERVICE (on page 25)
FORMAT DISP
COMP LEVEL
NTSC SETUP
USER COLOR TEMP
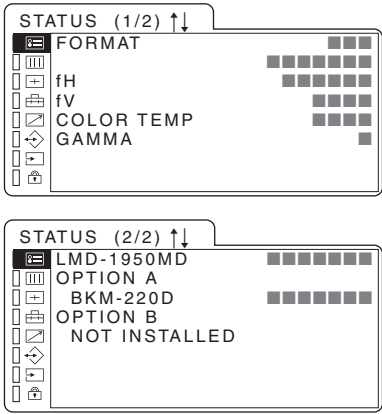
Adjusting and Changing the Settings

STATUS menu

The STATUS menu is used to display the current status of the unit. The following items are displayed:

For the video input

```
STATUS (1/2) ↑↓
 FORMAT              ■■■■■■■■
                     ■■■■■■■
 COLOR TEMP            ■■■
 GAMMA                  ■
 COMP LEVEL           ■■■■
 NTSC SETUP             ■
```

```
STATUS (2/2) ↑↓
 LMD-1950MD          ■■■■■■■
 OPTION A
  BKM-220D           ■■■■■■■
 OPTION B
  NOT INSTALLED
```

- FORMAT
- COLOR TEMP
- GAMMA
- COMP LEVEL
- NTSC SETUP
- Model name and serial number
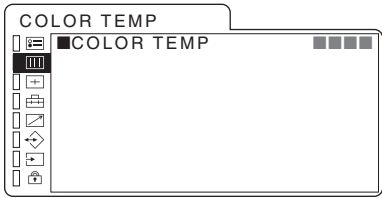- OPTION A and serial number
- OPTION B and serial number

For the DVI/HD15 input

```
STATUS (1/2) ↑↓
 FORMAT              ■■■
                     ■■■■■■
 fH                  ■■■■■■
 fV                  ■■■
 COLOR TEMP          ■■■
 GAMMA                 ■
```

```
STATUS (2/2) ↑↓
 LMD-1950MD          ■■■■■■■
 OPTION A
  BKM-220D           ■■■■■■■
 OPTION B
  NOT INSTALLED
```

- FORMAT
- fH
- fV
- COLOR TEMP
- GAMMA
- Model name and serial number
- OPTION A and serial number
- OPTION B and serial number

COLOR TEMP menu

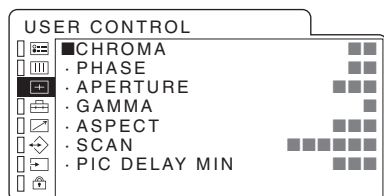The COLOR TEMP menu is used for selecting the color temperature setting.

```
COLOR TEMP
 ■COLOR TEMP         ■■■■
```

Submenu	Setting
COLOR TEMP	Select the color temperature from among "HIGH" , "LOW", "LOW2", "LOW3"and "USER" settings. • **HIGH** (D93 or equivalent) • **LOW** (D65 or equivalent) • **LOW2** (D56 or equivalent) • **LOW3** • **USER:** You can set to the color temperature adjusted in the USER SERVICE menu (on page 25). When the mode other than "USER" is selected, the color temperature cannot be adjusted in the USER SERVICE menu.

⊞ USER CONTROL menu
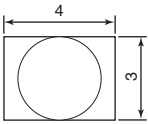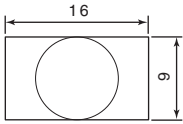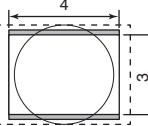
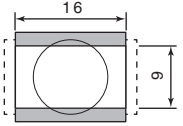The USER CONTROL menu is used for adjusting the picture.
Items that cannot be adjusted depending on the input signal are displayed in blue.
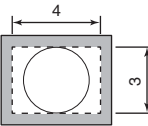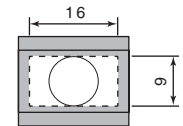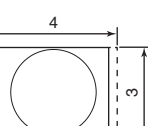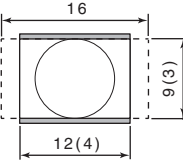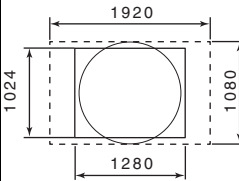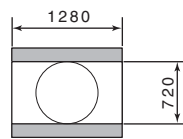
```
USER CONTROL
 ▣  ■CHROMA          ■■
 ▥  ·PHASE           ■■
 ⊞  ·APERTURE        ■■■
 ▱  ·GAMMA            ■
 ◪  ·ASPECT          ■■■
 ◈  ·SCAN       ■■■■■■■
 ▤  ·PIC DELAY MIN   ■■■
 🔒
```

Submenu	Setting
CHROMA	Adjusts color intensity. The higher the setting, the greater the intensity. The lower the setting, the lower the intensity.
PHASE	Adjusts color tones. The higher the setting, the more greenish the picture. The lower the setting, the more purplish the picture.
APERTURE	Adjusts the picture sharpness. The higher the setting, the sharper the picture.
GAMMA	Selects the appropriate gamma mode. You can select from among 5 settings. • **1** (2.6) • **2** (2.4) • **3** (2.2) • **4** (2.0) • **5** (DICOM) When "3" is selected, the setting is roughly same as the gamma mode of the CRT.
ASPECT	Sets the aspect ratio of the picture. When inputting 16:9 (squeezed) signal from equipment such as a DVD player, set to 16:9. • **4:3:** When the picture with ratio 4:3 is input. • **16:9:** When the picture with ratio 16:9 (squeezed) is input.

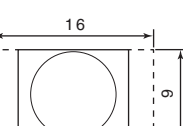| Submenu	Setting
SCAN	Sets the scan size of the picture. Select from among "NORMAL", "UNDER", "OVER", "FULL", "ZOOM" and "NATIVE (1080I and 720P only)" (see "Scan mode image" on page 21).

Note

When inputting the 1035/60I signal, the signal format is displayed as 1080/60I on the screen. A slightly squashed picture is displayed at a little lower position, because the picture is displayed in 1035/1080 picture ratio on a 16:9 screen. Adjust the position to the center using the SHIFT V setting (on page 22).

Submenu	Setting
PIC DELAY MIN	Selects to set the delay by the picture processing to the minimum level when the NTSC, PAL, 480/60I, 575/50I or 1080I signal is input. • **0:** Mode for giving precedence to the picture quality (recommended mode). This is a mode suitable for an animation and a still picture. It takes longer than "1" or "2" for processing the picture. • **1:** The processing time is short and this is a mode suitable for an animation. • **2:** The processing time is short and this is a mode suitable for a still picture.

Scan mode image

		Input	
		4 / 3	16 / 9
Image displayed[*1]	NORMAL/ OVER SCAN[*2]	4 / 3	16 / 9
	UNDER SCAN[*3]	4 / 3	16 / 9
	FULL	4 / 3	16 / 9
	ZOOM	–	16 / 9 (3) / 12 (4)
	NATIVE (1080I)	–	1920 / 1024 / 1080 / 1280
	NATIVE (720P)	–	1280 / 720

*1 The image illustrated shows the input signal by broken line and the efficient picture size by the solid line.
*2 NORMAL: 7% over scan
    OVER: 20% over scan
*3 –3% under scan

USER CONFIG menu

You can select a language, etc.
The item that cannot be accessed according to the input signal is displayed in blue.

For the video input

```
USER CONFIG (1/2) ↑↓
· SYNC              ■■ ■■■
■LANGUAGE         ■■■■■ ■■■
· POWER SAVING      ■■■
· COMPUTER DETECT···

AUTO CHROMA/PHASE
· AUTO ADJ VALUE    ■■■
· START···
```

```
USER CONFIG (2/2) ↑↓
■SHIFT  H              ■
· SHIFT  V             ■

· RESET
```

For the DVI/HD15 input

```
USER CONFIG (1/2) ↑↓
· SYNC              ■■■
■LANGUAGE         ■■■■■ ■■■
· POWER SAVING      ■■■
· COMPUTER DETECT···

AUTO CHROMA/PHASE
· AUTO ADJ VALUE    ■■■
· START···
```

```
USER CONFIG (2/2) ↑↓
■SIZE H            ■■■
· SIZE V             ■
· SHIFT  H           ■
· SHIFT  V           ■
· DOT PHASE        ■■
· PITCH            ■■

· RESET
```

Submenu	Setting
SYNC	Select the sync signal. • **EXT:** Select to operate the unit on an external sync signal. When the RGB signal is input, "EXT" is the default setting. • **INT:** Select to operate the unit on the sync signal included in the monitored signal.
LANGUAGE	You can select the menu or message language from among seven languages. • **ENGLISH:** English • **DEUTSCH:** German • **FRANÇAIS:** French • **ITALIANO:** Italian • **ESPAÑOL:** Spanish • 日本語 **:** Japanese • 中文 **:** Chinese

Submenu	Setting
POWER SAVING	Sets the power saving mode "ON" or "OFF". When set to "ON", the monitor goes into power saving mode if no signal is input for about one minute.
COMPUTER DETECT	The appropriate preset memory is set for the signal from DVI and HD15 input connector. Select "PRESET1" for the standard PC signal. Select "PRESET2", "PRESET3", "PRESET4" or "PRESET5" when the PC signal is not standard (on page 29). The preset memory is set for each input connector of DVI and HD15.
AUTO CHROMA/ PHASE	Adjusts color intensity (CHROMA) and tones (PHASE). • **AUTO ADJ VALUE**: Selects "ON" or "OFF" of the Auto adjustment. When set to "OFF", this parameter is reset to the factory setting. When set to "ON" the automatically adjusted value is enabled. • **START**: Display the color bar signals (Full/SMPTE/EIA) on the screen and press the ENTER key. The auto adjustment function starts. After the adjustment is done correctly, the AUTO ADJ VALUE is automatically set to ON. The auto adjustment is stopped by pressing the MENU key during the auto adjustment operation.
SIZE H	Adjusts the horizontal size of the picture. The higher the setting, the larger the width of the picture. The lower the setting, the narrower the width of the picture.
SIZE V	Adjusts the vertical size of the picture. The higher the setting, the larger the height of the picture. The lower the setting, the smaller the height of the picture.
SHIFT H	Adjusts the position of the picture. As the setting increases, the picture moves to the right, and as the setting decreases, the picture moves to the left.
SHIFT V	As the setting increases, the picture moves up, and as the setting decreases, the picture moves down.
DOT PHASE	Adjusts the dot phase. Adjust the picture further for a finer picture after the picture is adjusted by pressing the APA key.

Submenu	Setting
PITCH	Adjusts the horizontal size of the picture with the left side of the picture fixed. The higher the setting, the larger the width of the picture. The lower the setting, the narrower the width of the picture.
RESET	Resets the value of SIZE H, SIZE V, SHIFT H, SHIFT V, DOT PHASE and PITCH to the factory preset value.

◿ REMOTE menu

```
REMOTE
 ▣  ■PARALLEL  REMOTE...
 ▥
 ⊞  ·SERIAL  REMOTE  ■■■■■■□□
 ◿
 ⬦
 ⊡
 🔒
```

Submenu	Setting
PARALLEL REMOTE	Select the REMOTE connector pins for which you want to change the function. You can assign various functions to 1 to 4 pins and 6 to 8 pins. The following lists the functions you can assign to the pins. • – – – ("– – –": No function is assigned.) • COMPOSITE • Y/C • RGB • COMPONENT • DVI • HD15 • OPTION A-1 • OPTION A-2 • OPTION B-1 • OPTION B-2 • UNDERSCAN • OVERSCAN • FULL • ZOOM • NATIVE • 4:3 • 16:9 • TALLY • EXT SYNC (External Sync) **Notes** • If you use the parallel remote function, you need to connect cables. For more details, see page 27. • When "OFF" is selected in the INPUT SELECT menu and the function is assigned, the remote function does not work. Select "ON" to use the parallel remote function (on page 24).

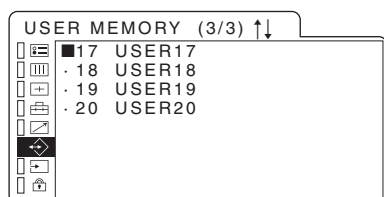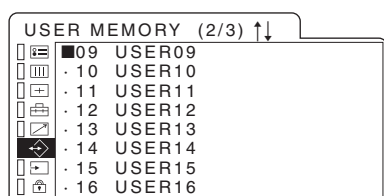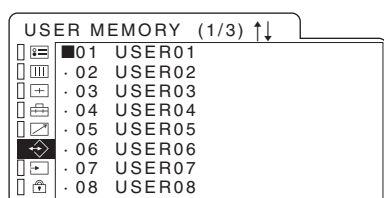| Submenu	Setting
SERIAL REMOTE	Select one out of following three modes. • **RMT OFF:** You cannot use the serial remote. Adjust settings by the keys on the front panel. • **RMT ON:** You can use the serial remote. You cannot use the keys except for the serial remote setting on the front panel. • **RMT & LCL:** You can use both the serial remote and the keys on the front panel.

Notes

• When "RMT ON" is selected, the REMOTE and ⚷ indicator on the front panel light.
• When "RMT & LCL" is selected, the REMOTE indicator lights.

For details, refer to the Interface Manual for Programmers (saved in the supplied CD-ROM, Japanese and English only).

⟳ USER MEMORY menu

```
USER MEMORY (1/3) ↑↓
 📧 ■01 USER01
 ▥  ·02 USER02
 ⊞  ·03 USER03
 🖨  ·04 USER04
 ◪  ·05 USER05
 ⟳  ·06 USER06
 ▸  ·07 USER07
 🔒  ·08 USER08
```

```
USER MEMORY (2/3) ↑↓
 📧 ■09 USER09
 ▥  ·10 USER10
 ⊞  ·11 USER11
 🖨  ·12 USER12
 ◪  ·13 USER13
 ⟳  ·14 USER14
 ▸  ·15 USER15
 🔒  ·16 USER16
```

```
USER MEMORY (3/3) ↑↓
 📧 ■17 USER17
 ▥  ·18 USER18
 ⊞  ·19 USER19
 🖨  ·20 USER20
 ◪
 ⟳
 ▸
 🔒
```

Submenu	Setting
01~20	You can save the setting of the following functions. COLOR TEMP menu • COLOR TEMP USER CONTROL menu • CHROMA • PHASE • APERTURE • GAMMA • ASPECT • SCAN • PIC DELAY MIN USER SERVICE menu • ADJUST GAIN • ADJUST BIAS Front keys • ☼ (Brightness) • ◑ (Contrast)

Saving the user memory

You can save the 20 picture settings with the name. To load the picture in the saved setting, see "Loading USER MEMORY" on page 17.

To save the picture setting

1 Press the ↑ or ↓ key to select the memory number in the USER MEMORY menu, then press the ➡ or ENTER key.
The USER MEMORY setting menu appears.

```
USER MEMORY (1/3)
 📧 01 USER01
 ▥
 ⊞  ■SAVE···
 🖨
 ◪  ·NAME···
 ⟳
 ▸
 🔒
```
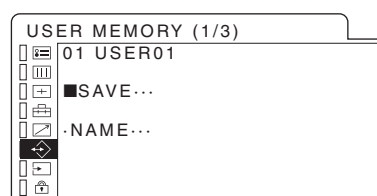
2 Select "SAVE", then press the ➡ or ENTER key.
The menu for confirming the memory appears.

```
SAVE TO USER MEMORY 01 ?

 [ENTER] YES
  [MENU] NO
```
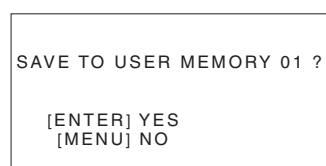
3 Press the ENTER key.
The current picture settings are saved and the USER MEMORY setting menu appears.

To close the menu without saving the setting

Press the ⬅ or MENU key.
The USER MEMORY setting menu appears.

To change the name

1 Press the ↑ or ↓ key to select the memory number in the USER MEMORY menu, then press the ➡ or ENTER key.
The USER MEMORY setting menu appears.

```
USER MEMORY (1/3)
01 USER01

  ■SAVE···

  ·NAME···
```
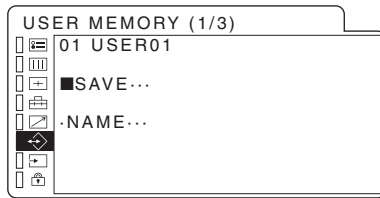
2 Press the ↓ key to select "NAME", then press the ➡ or ENTER key.
The menu for setting the user name appears.

```
USER MEMORY (1/3)
01 USER01

    ←→CURSOR
    ↑ ↓ CHANGE CHAR.
    ↑ + ↓ DELETE
    [ENTER]SAVE
    [MENU]CANCEL
```

3 Change the user name.
• Press the ← or ➡ key to move the cursor to the character position to be changed.
• Press the ↑ or ↓ key to change the character.
Usable characters: "A to Z", "0 to 9", ".", "/", ",", "_", "-", "(space)"
• Press the ↑ and ↓ keys simultaneously to clear the character.
The maximum 18 characters are input for the user name.

4 Press the ENTER key.
The settings are saved and the USER MEMORY setting menu appears.

To close the menu without saving the setting
Press the MENU key.
The USER MEMORY setting menu appears.

⬚ INPUT SELECT menu

The input signal set to "OFF" is skipped when the INPUT ↑/↓ key is pressed.

```
INPUT SELECT  (1/2) ↑↓
  ■ALL RESET
   STANDARD INPUT
   · COMPOSITE        ▪▪
   · Y/C              ▪▪
   · RGB              ▪▪
   · COMPONENT        ▪▪
   · DVI              ▪▪
   · HD15             ▪▪
```

```
INPUT SELECT  (2/2) ↑↓
   OPTION
  ■OPTION  A-1        ▪▪
   · OPTION  A-2      ▪▪
   · OPTION  B-1      ▪▪
   · OPTION  B-2      ▪▪
```
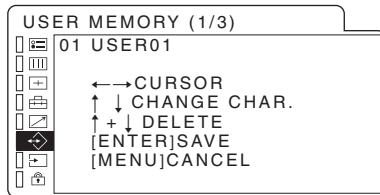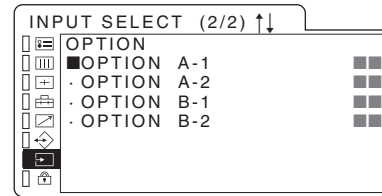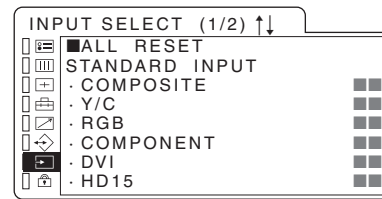
Submenu	Setting
ALL RESET	All settings are reset to the factory preset ones.
STANDARD INPUT	Sets the input setting of "COMPOSITE", "Y/C", "RGB", "COMPONENT", "DVI, and "HD15" • **ON:** Input signal is selectable. • **OFF:** Input signal is not selectable. **Note** You cannot set all input settings to "OFF".
OPTION	Sets the input setting of an input adaptor. • **ON:** Input signal is selectable. • **OFF:** Input signal is not selectable.

⬚ KEY INHIBIT menu

```
KEY INHIBIT
  ■KEY INHIBIT        ▪▪▪
```
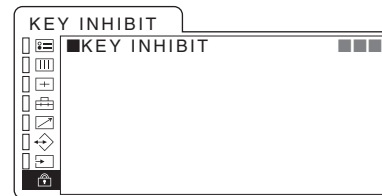
You can lock the setting so that they cannot be changed by an unauthorized user.
Select "OFF" or "ON".
If you set to "ON", all items are displayed in blue, indicating the items are locked.
The keys only for setting the key inhibit to "OFF" work.
When the key inhibit is set to "ON", the ⚿ indicator on the front panel lights.

Note

When "RMT ON" is selected in the REMOTE menu (on page 22), the ⚿ indicator lights and the keys on the front panel do not work. However, "KEY INHIBIT" keeps set to "OFF". When you want to operate the keys on the front panel, select "RMT OFF" or "RMT & LCL" in the REMOTE menu.

⌐ USER SERVICE menu

The USER SERVICE menu is provided for any adjustments or settings other than those listed above. To access the USER SERVICE menu, press and hold the MENU key when the menu is not displayed. The item that cannot be accessed according to the input signal is displayed in blue.

```
 USER SERVICE
⌐ ■FORMAT DISP
  ·COMP LEVEL        ■■■■■  ■■
  ·NTSC SETUP               ■■

  USER COLOR TEMP
  ·ADJUST GAIN…
  ·ADJUST BIAS…
  ·COPY FROM                ■
```

Submenu	Setting
FORMAT DISP	Select the display mode of the input signal and its format. • **ON**: Input signal and its format are always displayed. • **OFF**: Input signal and its format are not displayed. • **AUTO**: Input signal and its format are displayed for about 10 seconds, when the INPUT key is pressed, or the input of the signal begins.
COMP LEVEL	Select the component level from among three modes. • **SMPTE** for 100/0/100/0 signal • **BETA 0** for 100/0/75/0 signal • **BETA 7.5** for 100/7.5/75/7.5 signal
NTSC SETUP	Select the NTSC setup level from two modes. The 7.5 setup level is used mainly in North America. The 0 setup level is used mainly in Japan.
USER COLOR TEMP	Adjust the color temperature of "USER" which is selectable in the COLOR TEMP menu. When the color temperature other than "USER" is selected, this cannot be selected. You need to use the measurement instrument to adjust the white balance. Recommended: Konicaminolta color analyzer CA-210 • **ADJUST GAIN**: Adjusts the color balance (GAIN). • **ADJUST BIAS**: Adjusts the color balance (BIAS). • **COPY FROM**: If you select "HIGH", "LOW", "LOW2" or "LOW3", the data for the selected color temperature will be copied in the user setting.

Troubleshooting

This section may help you isolate the cause of a problem and as a result, eliminate the need to contact technical support.

Symptom	Settlement
The display is colored in green or purple.	Select the correct input by pressing the INPUT key.
The black bars appear at the upper and lower positions of the picture.	When the signal aspect ratio is different from that of the LCD panel, the black bars appear. This is not a failure of the unit.
The key on the front panel do not work.	The key protection function works. The key inhibit function can be set in the KEY INHIBIT menu and REMOTE menu. Set as follows. **When "KEY INHIBIT" is set to "ON":** Set to "OFF". **When "SERIAL REMOTE" is set to "RMT ON":** Set to "RMT OFF" or "RMT & LCL". **When "KEY INHIBIT" and "SERIAL REMOTE" are set to "ON":** Set "KEY INHIBIT" to "OFF" and then "SERIAL REMOTE" to "RMT OFF" or "RMT & LCL".
The image is not displayed on the monitor.	After confirming the connections and the settings in the INPUT SELECT menu (on page 24), select the correct input by pressing the INPUT key.
The image is disturbed.	Select "EXT" or "INT" correctly in the "SYNC" setting of the USER CONFIG menu (on page 21).
The "FAN ERROR" message is displayed.	The fan for cooling the unit does not work. Turn off the power and contact an authorized Sony dealer.

Specifications

Picture performance

LCD panel   a-Si TFT Active Matrix
Pixel efficiency   99.99 %
Viewing angle   (up/down/left/right, contrast > 10:1)
           89°/89°/89°/89° (typical)
Scan   Under scan –3 %
           Normal 7 %
           Over scan 20 %
Efficient picture size
           Approx. 376×301, 482 mm (w/h, dia)
           ($14\ ^7/_8 \times 11\ ^7/_8$, 19 inches)
Resolution   H: max. 1,280 dots
           V: max. 1,024 lines
Aspect ratio   5:4

Input/output connectors

Input

Composite input connector
           BNC type (1)
           1 Vp-p ± 3dB sync negative
Y/C input connector
           4-pin mini DIN (1)
           Y: 1 Vp-p ± 3dB sync negative
           C: 0.286 Vp-p ± 3dB (NTSC burst
             signal level)
             0.3 Vp-p ± 3dB (PAL burst signal
             level)
RGB/Component connectors
           BNC type (3)
           RGB input: 0.7 Vp-p ± 3dB (Sync On
             Green, 0.3 Vp-p sync negative)
           Component input: 0.7 Vp-p ± 3dB
             (75% chrominance standard color
             bar signal)
External Sync input connector
           BNC type (1)
           0.3 to 4 Vp-p ± bipolarity ternary or
             negative polarity binary
Remote input terminal
           Parallel remote
             Modular connector 8-pin (1)
           RS-232C (serial remote)
             D-sub 9-pin (1)
HD15 input connector
           HD D-sub 15-pin (1)
           R/G/B: 0.7 Vp-p, 75 ohms, sync
             positive (when G channel is sync
             negative, the internal sync can be
             used. 0.3 Vp-p)

           Sync: TTL level, 2.2 kilohms, polarity
             free (H/V separate and composite
             sync)
           Plug & Play function: corresponds to
             DDC2B
DVI input connector
           DVI-D (1)
           TMDS (Single link)

Output

Video output connectors
           BNC type (4)
           Loop-through, with 75 ohms automatic
             terminal function
           4-pin mini DIN (1)
           Loop-through, with 75 ohms automatic
             terminal function
External Sync output connector
           BNC type (1)
           Loop-through, with 75 ohms automatic
             terminal function

General

Power   LCD Monitor (LMD-1950MD)
           DC IN: 24 V 2.8 A (Supplied from AC
             Adaptor)
           AC Adaptor (AC-1950MD)
           AC IN: 100-240 V 50/60 Hz 0.9-0.4 A
           DC OUT: 24 V 2.8 A
Power consumption
           Maximum: approx. 66 W (when two
             BKM-229X are attached)
           Maximum: approx. 59 W (when no
             input adaptor is attached)
Operating conditions
    Temperature 0 °C to 40 °C (32 °F to 104 °F)
    Recommended temperature
           20 °C to 30 °C (68 °F to 86 °F)
    Humidity   30 % to 85 % (no condensation)
    Pressure   700 hPa to 1060 hPa
Storage and transport conditions
    Temperature –20 °C to 60 °C (–4 °F to 140 °F)
    Humidity   0 % to 90 % (no condensation)
    Pressure   700 hPa to 1060 hPa
Accessories supplied
           AC adaptor AC-1950MD (1)
           AC power cord (1)
           DC cable (1)
           AC plug holder (2)
           Instructions for Use (1)
           CD-ROM (1)
           Using the CD-ROM Manual (1)
           Quick Reference (1)
           When You First Use the Monitor (1)
           Sales Companies Guide (1)
           Warranty Card (1)

Optional accessories
> SDI 4:2:2 input adaptor
> > BKM-220D
> HD/D1-SDI input adaptor
> > BKM-243HS
> NTSC/PAL input adaptor
> > BKM-227W
> Analog Component input adaptor
> > BKM-229X [1]
> Monitor stand
> > SU-560

> *1 Use optional input adaptor BKM-229X with a serial number 2100001 and higher for this unit.

Medical Specifications

Protection against electric shock:
> Class I

Protection against harmful ingress of water:
> Ordinary

Degree of safety in the presence of flammable anesthetics or oxygen:
> Not suitable for use in the presence of flammable anesthetics or oxygen

Mode of operation:
> Continuous

Design and specifications are subject to change without notice.

Pin assignment

PARALLEL REMOTE terminal
Modular connector (8-pin)
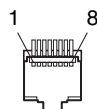
Pin No.	Signal
1	Designating Y/C input signal
2	Designating RGB input signal
3	Designating OPTION A-1 input signal
4	Designating OPTION A-2 input signal
5	GND
6	Tally lamp ON/OFF
7	Under scan
8	Over scan

You can allocate functions using the REMOTE menu (see page 22).
Connect the function you want to use with a Remote Control to the Ground (Pin 5).

SERIAL REMOTE (RS-232C) terminal
D-sub 9 pin, female
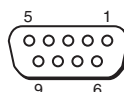
Pin No.	Signal
1	NC
2	RX
3	TX
4	NC
5	GND
6	NC
7	RTS
8	CTS
9	NC

Video signal formats

The unit is applicable to the following signal formats.

Input						
System	Total lines	Active lines	Frame rate*2	Scanning format	Aspect ratio	Signal standard
575/50I (PAL)	625	575	25	2:1 interlace	16:9/4:3	EBU N10 (PAL: ITU-R BT.624)
480/60I (NTSC)	525	483	30	2:1 interlace	16:9/4:3	SMPTE 253M (NTSC: SMPTE 170M)
576/50P	625	576	50	Progressive	16:9/4:3	ITU-R BT.1358
480/60P	525	483	60	Progressive	16:9/4:3	SMPTE 293M
1080/50I	1125	1080	25	2:1 interlace	16:9	SMPTE 274M
1035/60I *1	1125	1035	30	2:1 interlace	16:9	SMPTE 260M/BTA S-001B
1080/60I	1125	1080	30	2:1 interlace	16:9	SMPTE 274M/BTA S-001B
720/60P	750	720	60	Progressive	16:9	SMPTE 296M

Output			
System	Effective picture size	Frame rate*2	Scanning format
575/50I (PAL)	1280 × 720/1280 × 960	50	Progressive
480/60I (NTSC)	1280 × 720/1280 × 960	60	Progressive
576/50P	1280 × 720/1280 × 960	50	Progressive
480/60P	1280 × 720/1280 × 960	60	Progressive
1080/50I	1280 × 720	50	Progressive
1035/60I *1	1280 × 720	60	Progressive
1080/60I	1280 × 720	60	Progressive
720/60P	1280 × 720	60	Progressive

*1 The signal format is displayed as 1080/60I on the screen.
A slightly squashed picture is displayed at a little lower position, because the picture is displayed in 1035/1080 picture ratio on a 16:9 screen. Adjust the position to the center using the SHIFT V setting (on page 22).
*2 The frame rate is also compatible with 1/1.001.

When an optional input adaptor is installed

The unit is applicable to the following signal formats.

When BKM-220D/243HS is installed

	Input		
System	Signal standard	BKM-220D	BKM-243HS
575/50I	ITU-R BT.656	○	○
480/60I	SMPTE 259M	○	○
1080/50I	SMPTE 292M	×	○
1035/60I *	SMPTE 292M	×	○
1080/60I	SMPTE 292M	×	○
720/60P	SMPTE 292M	×	○

When BKM-227W/229X is installed

	Input		
System	Signal standard	BKM-227W	BKM-229X
575/50I	EBU N10	×	○
PAL	ITU-R BT.624	○	×
480/60I	SMPTE 253M	×	○
NTSC	SMPTE 170M	○	×
576/50P	ITU-R BT.1358	×	○
480/60P	SMPTE 293M	×	○
1080/50I	SMPTE 274M	×	○
1035/60I*	SMPTE 260M/BTA S-001B	×	○
1080/60I	SMPTE 274M/BTA S-001B	×	○
720/60P	SMPTE 296M	×	○

* A slightly squashed picture is displayed at a little lower position, because the picture is displayed in 1035/1080 picture ratio on a 16:9 screen. Adjust the position to the center using the SHIFT V setting (on page 22).

About the preset signal

This unit has a preset memory for signals connected to the DVI and HD15 input terminals (the preset memory). When a preset signal is input, the unit automatically detects the signal type and recalls the data for the signal from the preset memory to adjust it to an optimum picture.
This unit is applicable to the following preset signals.

PRESET1

		Preset signal	fH [kHz]	fV [Hz]
HD15	640×480	VGA mode 3	31.5	60
		VGA VESA 72Hz	37.9	72
		VGA VESA 75Hz	37.5	75
		VGA VESA 85Hz	43.3	85
		VGA Non-CRT	29.5	60
	800×600	SVGA VESA 56Hz	35.2	56
		SVGA VESA 60Hz	37.9	60
		SVGA VESA 72Hz	48.1	72
		SVGA VESA 75Hz	46.9	75
		SVGA VESA 85Hz	53.7	85
		SVGA Non-CRT	37.0	60
	1024×768	XGA VESA 60Hz	48.4	60
		XGA VESA 70Hz	56.5	70
		XGA VESA 75Hz	60.0	75
		XGA VESA 85Hz	68.7	85
		XGA Non-CRT	47.3	60
	1152×864	VESA 75Hz	67.5	75
	1280×960	VESA 60Hz	60.0	60
		VESA Non-CRT	59.2	60
	1280×1024	SXGA VESA 60Hz	64.0	60
		SXGA VESA 75Hz	80.0	75
		SXGA CRT 50Hz	52.7	50
		SXGA Non-CRT	63.2	60
	720×400	VGA TEXT	31.5	70

The DVI signal is automatically distinguished within the range of the following input signal.

Range of DVI input signal
Horizontal frequency: 31.5-64.0 kHz
Vertical frequency: 50.0-85.1 Hz
Dot clock: 25.0-108.0 MHz

VGA, SVGA, XGA, and SXGA are registered trademarks of International Business Machines Corporation, U.S.A.

PRESET2

	Preset signal	fH [kHz]	fV [Hz]
HD15	1514×483*	31.5	60
	1476×576*	31.3	50
DVI	1280×483	31.5	60
	1280×576	31.3	50

* Down convert display.

PRESET3

	Preset signal	fH [kHz]	fV [Hz]
HD15	720×483	31.5	60
	720×576	31.3	50
	1280×720	45.0	60
	1280×720	37.5	50
DVI	720×483	31.5	60
	720×576	31.3	50
	1280×720	45.0	60
	1280×720	37.5	50

PRESET4

	Preset signal	fH [kHz]	fV [Hz]
HD15	640×480	31.5	60
	1024×768	48.4	60
	1280×960	60.0	60
DVI	1024×768	48.4	60
	1280×960	60.0	60

PRESET5

	Preset signal	fH [kHz]	fV [Hz]
HD15	640×480	31.5	60
	800×600	31.3	50
DVI	800×600	46.9	75

Dimensions/Mass

Front

When an optional stand SU-560 is attached

442 (17 1/2)
379 (15)
303 (12)
185 (7 3/8)
218 (8 5/8)
274 (10 7/8)

Top

M4*   100 (4)
100 (4)
210 (8 3/8)

* Length of M4 screws (4)

Monitor cabinet   Attached object

M4 screw

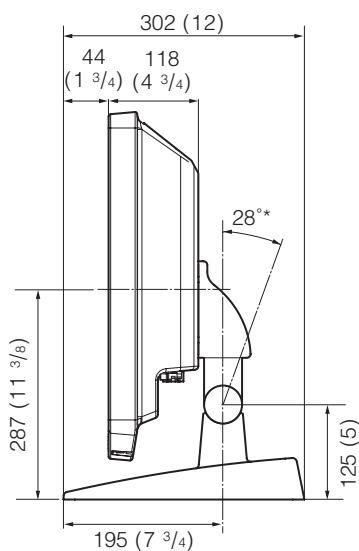7 (9/32) to 9 (3/8)
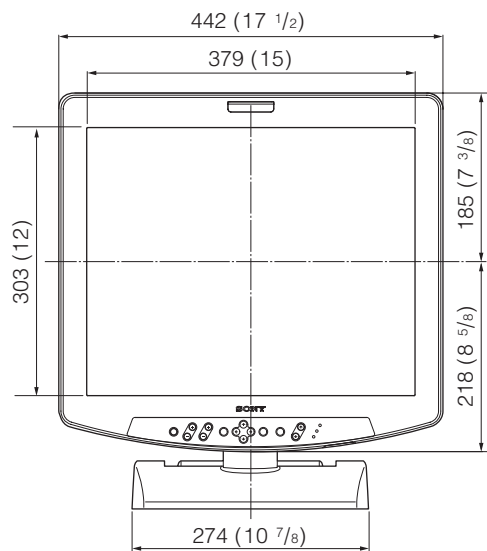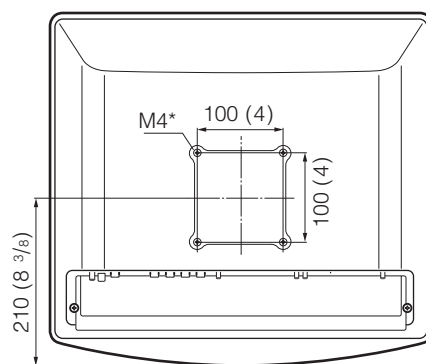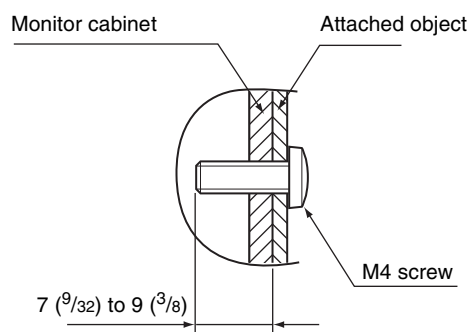
Side

When an optional stand SU-560 is attached

Unit: mm (inches)

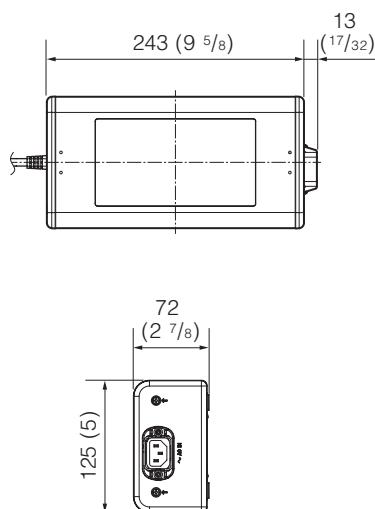*Tilt angle

Mass

Approx.9.2 kg (20 lb 4 oz)
  (When no input adaptor is attached)
Approx. 9.7 kg (21 lb 6 oz)
  (When two BKM-229X are attached)

AC adaptor

Mass

Approx.1.4kg (3 lb 1 oz)