

LCD Monitor

Instructions for Use



LMD-1420MD

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.

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.

WARNING

THIS APPARATUS MUST BE EARTHED.

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.

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.

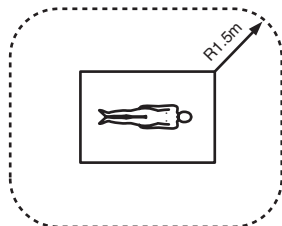
All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

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>).

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-1420MD 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.

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.

WARNING on power connection

Use a proper power cord for your local power supply.

1. Use the approved Power Cord (3-core mains lead) / Appliance Connector / Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core main lead) / Appliance Connector / Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord / Appliance Connector / Plug, please consult a qualified service personnel.

WARNING on power connection for medical use

Please use the following power supply cord.

With connectors (plug or female) and cord types other than those indicated in this table, use the power supply cord that is approved for use in your area.

	United States	Canada
Plug Type	HOSPITAL GRADE*	HOSPITAL GRADE*
Female end	E62405, E35708	LR53182, LL022442, LL088408
Cord type	E159216, E35496 Min.Type SJT Min.18 AWG	LL112007-1, LL20262, LL32121, LL84494 Min.Type SJT Min.18AWG
Minimum cord set rating	10A/125V	10A/125V
Safety approval	UL Listed	CSA

*Note: Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked 'Hospital Only' or 'Hospital Grade'.

Symbols on the unit

Symbol	Location	This symbol indicates
	Front	Main power switch.
	Rear	The equipotential terminal which brings the various parts of a system to the same potential.
	Rear	Functional earth terminal
	Front	Key inhibit The settings are locked so that they cannot be changed.

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Precaution

On Safety

- Operate the unit only with a power source as specified in the “Specifications” section.
- A nameplate indicating operating voltage, power consumption, etc., is located on the rear panel.
- 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.
- Do not drop or place heavy objects on the power cord. If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord.
- Unplug the unit from the wall outlet if it is not to be used for several days or more.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

On Installation

- Allow adequate air circulation to prevent internal heat build-up.
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 in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Handling the LCD Screen

- Bright or dark points of lights (red, blue or green) may appear on the LCD screen. This is not a malfunction. The LCD screen is made with high-precision technology with more than 99.99 % of the picture elements intact. However, some picture elements may not appear intermittently.
- 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, horizontal lines or 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.

On Cleaning

Before cleaning

Be sure to disconnect the AC power cord from the AC outlet.

On cleaning the monitor

A material that withstands sterilization is used for the front protection plate of the medical use LCD monitor. The protection plate surface is especially treated to reduce reflection of light. When solvents such as benzene or thinner, or acid, alkaline or abrasive detergent, or chemical cleaning cloth are used for the protection plate surface/monitor surface, the performance of the monitor may be impaired or the finish of the surface may be damaged. Take care with respect to the following:

- Clean the protection plate surface/monitor surface with a 50 to 70 v/v% concentration of isopropyl alcohol or a 76.9 to 81.4 v/v% concentration of ethanol using a swab method. Wipe the protection plate surface gently (wipe using less than 1 N force).
- Stubborn stains may be removed with a soft cloth such as a cleaning cloth lightly dampened with mild detergent solution using a swab method and then clean using the above chemical solution.
Never use solvents such as benzene or thinner, or acid, alkaline or abrasive detergent, or chemical cleaning cloth for cleaning or sterilization, as they will damage the protection plate surface/monitor surface.
- Do not use unnecessary force to rub the protection plate surface/monitor surface with a stained cloth. The protection plate surface/monitor surface may be scratched.
- Do not keep the protection plate surface/monitor surface in contact with a rubber or vinyl resin product for a long period of time. The finish of the surface may deteriorate or the coating may come off.

On Repacking

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

On Mounting on a Rack

Leave 1U space empty above and below the monitor to ensure adequate air circulation or install a fan to maintain the monitor's performance.

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.

On the Delay of the Video Signal

When an analog signal is converted into a digital signal in order to display it on the LCD panel, the signal is delayed for about two frames. A quick motion object may be displayed with a white after-image due to the response speed of the LCD panel. Therefore when the image shot by an endoscope is displayed on the LCD panel, it becomes blurred and there is a delay until it is displayed, compared with an image on the CRT monitor. The LCD monitor is not suitable for checking an object correctly and quickly during an operation such as using an endoscope.

Features

The LMD-1420MD is a 14-type LCD monitor that conforms to medical safety standards. This unit is suitable for endoscopy or use as a sub-monitor.

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 screen protect panel, etc.

High brightness LCD panel

Because of the monitor's high brightness, high contrast and wide viewing angle technology, it can be used under various lighting conditions.

Rack mount monitors

The LMD-1420MD can be installed in a standard 19-inch rack using an optional rack mounting bracket MB-526.

Monitor stand with tilt function

As the stand with tilt function is equipped normally for the monitor, you can use it easily on the desk top. When you mount the monitor to the rack, remove the stand.

Tally lamp

The green LED lamp is used for the tally lamp. You can check the status of the monitor, controlling the lamp from the external remote.

Two color system available

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

Blue only mode

In the blue only mode, an apparent monochrome display is obtained with all three of the R/G/B cathodes driven with a blue signal. This facilitates color saturation and phase adjustments and observation of VCR noise.

Analog RGB/component input connectors

Analog RGB or component signals from video equipment can be input through these connectors.

Y/C input connectors

Y/C signals of the video signal can be input through this connector.

SDI optional input

SDI signals can be available when SDI input adaptor BKM-320D (optional) is attached.

External sync input

When the EXT SYNC button is in the on position, the unit can be operated on the sync signal supplied from an external sync generator.

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 three (high, low and low2) settings and gamma mode from among five settings. You can also adjust the color temperature to the appropriate setting.

Aspect setting

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

Scan setting

You can set the display size to -3% under scan or 5% over scan mode.

Key inhibit function

You can inhibit a key, function to prevent misoperation.

Select language display

You can select from seven display languages English, French, German, Spanish, Italian, Japanese and Chinese.

External remote control function

You can directly select the input signal, aspect, etc., by operating the equipment connected to the PARALLEL REMOTE terminal.

Picture delay minimizing mode

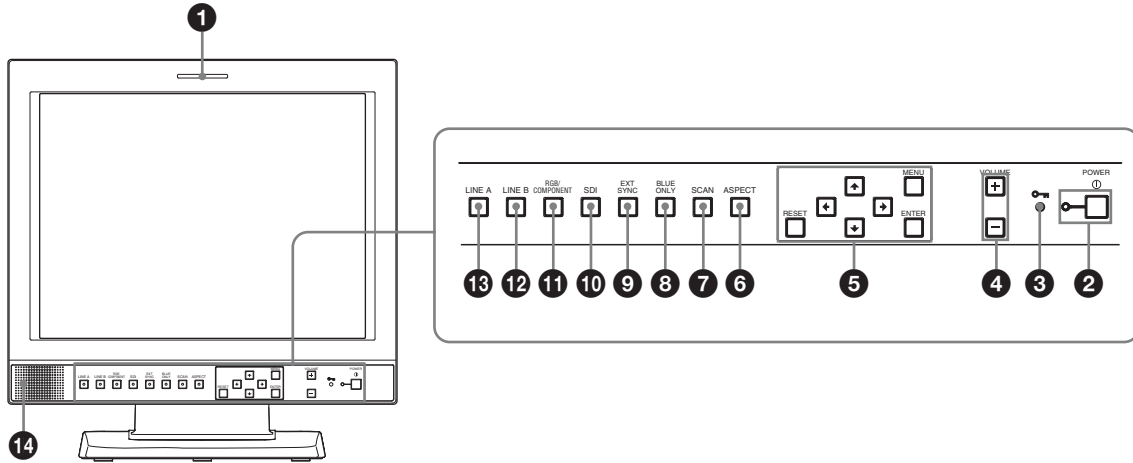
This unit is equipped with a mode that is used to minimize the picture delay that occurs due to the signal conversion process.

Two kinds of ground terminals

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

Location and Function of Parts and Controls

Front Panel



❶ Tally lamp

The lamp lights in green when this unit is controlled from the PARALELL REMOTE terminal on the rear panel of the unit.

❷ POWER switch and indicator

Press to turn on the power. The indicator turns on. Press again to turn off the power.

❸ KEY INHIBIT indicator

When the key inhibit function works, the indicator lights.

For the key inhibit function, refer to “KEY INHIBIT menu” on page 19.

❹ VOLUME buttons

Press the + button to increase the volume or the – button to decrease it.

❺ Menu operation buttons

Displays or sets the on-screen menu.

↑/↓/←/→ (arrow) buttons

Select the menu or make various adjustments.

MENU button

Press to display the on-screen menu.

Press again to clear the menu.

RESET button

Resets the value of an item back to the previous value. This button functions when the menu item is adjusted (displayed) on the screen.

ENTER button

Press to confirm a selected item on the menu.

❻ ASPECT select button

Sets the aspect ratio of the picture, 4:3 or 16:9.

❼ SCAN select button

You can change the scan size of the picture. When you press the button, the scan size is changed to normal (5% over scan), under (-3% under scan) or ZOOM set on the SCAN menu (see page 18).

❽ BLUE ONLY button

Press this button to eliminate the red and green signals. Only blue signal is displayed as an apparent monochrome picture on the screen. This facilitates “chroma” and “phase” adjustments and observation of VCR noise.

❾ EXT SYNC (external sync) button

Press to operate the unit on an external sync signal through the EXT SYNC IN connector. The EXT SYNC button works when the component/RGB signals are input.

10 SDI button

Press to monitor the signal from the OPTION IN connector.

11 RGB/COMPONENT button

Press to monitor the signal through the IN (input) connector of the RGB/COMPONENT connectors.

12 LINE B button

Press to monitor the signal through the IN (input) connector of the LINE B connectors.

13 LINE A button

Press to monitor the signal through the IN (input) connector of the LINE A connectors.

14 Speakers

The audio signal which is selected by the input select button on the front panel is output.

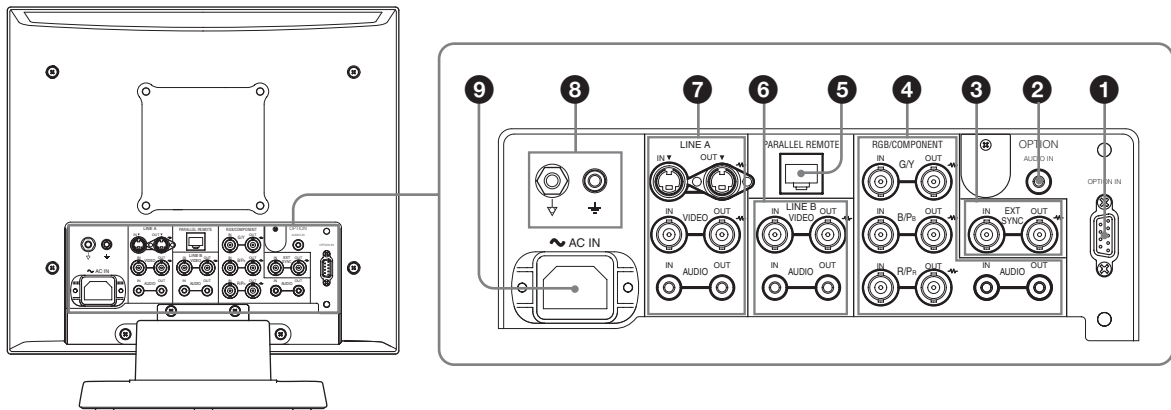
Input Signals and Adjustable/Setting Items

Item	Input signal				
	Video, Y/C	B & W	Component	RGB	SDI D1
CONTRAST	○	○	○	○	○
BRIGHT	○	○	○	○	○
CHROMA	○	×	○	×	○
PHASE	○ (NTSC)	×	×	×	×
APERTURE	○	○	○	×	○
COLOR TEMP	○	○	○	○	○
COMP LEVEL*	×	×	○	×	×
NTSC SETUP	○ (NTSC)	○ (480/60I)	×	×	×
GAMMA	○	○	○	○	○
SCAN	○	○	○	○	○
ASPECT	○	○	○	○	○
BLUE ONLY	○	×	○	○	○

* When a component signal (480/60I) is input, this can be switchable.

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

Rear Panel



1 OPTION IN connector (D-sub 9-pin, female)

When optional SDI input adaptor BKM-320D is connected, SDI signals are input. Press the SDI button to monitor the signal.

Note

Do not install the equipment other than BKM-320D. It causes to damage the unit or the equipment.

2 OPTION AUDIO IN connector

If the BKM-320D is installed in the OPTION IN connector, input an audio signal into this connector. Press the SDI button to monitor the audio signal.

3 EXT SYNC IN/OUT (external sync) connectors (BNC)

Press the EXT SYNC button to use the sync signal through this connector.

IN connector

When this unit operates on an external sync signal, connect the reference signal from a sync generator to 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).

OUT connector

Loop-through output of the IN connector. Connect to the external sync input of video equipment to be synchronized with this unit.

When the cable is connected to this connector, the 75-ohm termination of the input is automatically released, and the signal input to the IN connector is output from this connector.

4 RGB/COMPONENT connectors

Analog RGB signal or component (Y, Pb, Pr) signal input connectors and their loop-through output connectors.

Press the RGB/COMPONENT button on the front panel to monitor the signal input through these connectors.

G/Y, B/P_B, R/P_R IN/OUT (BNC)

These are the input/output connectors for an analog RGB and a component (Y, Pb, Pr) signal. Unless an external sync signal is input, the monitor is synchronized with the sync signal contained in the G/Y signal.

AUDIO IN/OUT (RCA pin)

When using an analog RGB or a component signal as a video signal, use these jacks for the input/output of an audio signal. Connect them to the audio input/output jacks on equipment such as a VCR.

5 PARALLEL REMOTE terminal (modular connector)

Forms 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 page 21.

6 LINE B connectors

Line input connectors for composite video and audio signals and their loop-through output connectors.

Press the LINE B button on the front panel to monitor the signal input through these connectors.

VIDEO IN/OUT (BNC)

These are the input/output connectors for a composite video signal. Connect them to the composite video input/output connectors on equipment such as a VCR, video camera, or another monitor.

AUDIO IN/OUT (RCA pin)

These are the input/output jacks for an audio signal. Connect them to the audio input/output jacks on equipment such as a VCR.

7 LINE A connectors

Line input connectors for Y/C separate, composite video and audio signals and their loop-through output connectors.

Press the LINE A button on the front panel to monitor the input signal through these connectors.

If you input signals to both Y/C IN and VIDEO IN, the signal input to the Y/C IN is selected.

Y/C IN/OUT (4-pin mini-DIN)

These are the input/output connectors for a Y/C separate signal. Connect them to the Y/C separate input/output connectors on equipment such as a VCR, video camera, or another monitor.

VIDEO IN/OUT (BNC)

These are the input/output connectors for a composite video signal. Connect them to the composite video input/output connectors on equipment such as a VCR, video camera, or another monitor.

AUDIO IN/OUT (RCA pin)

These are the input/output jacks for an audio signal. Connect them to the audio input/output jacks on equipment such as a VCR.

8 ∇/\perp (Equipotential/Function Earth) terminal

∇ (equipotential) terminal

Connects the equipotential plug.

\perp (function earth) terminal

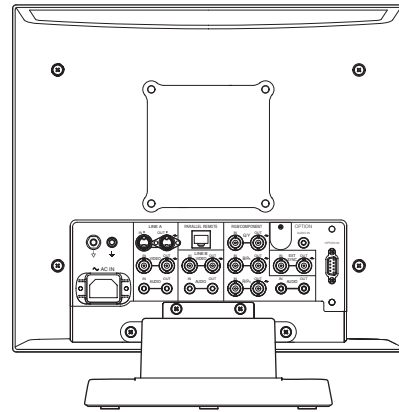
Connects the earth cable.

9 AC IN socket

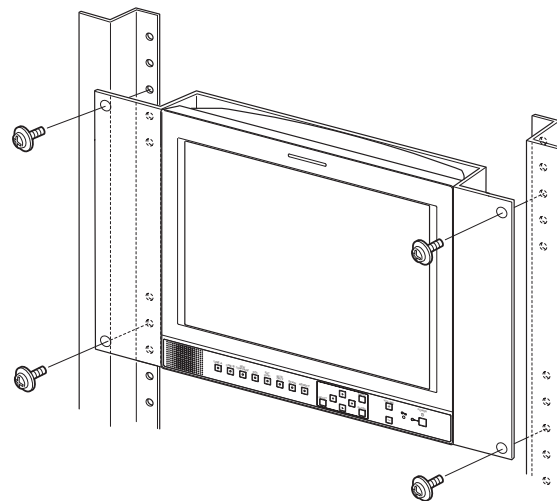
Connect the supplied AC power cord.

Installing to the Rack

- 1 Remove the screws (4) to remove the stand.



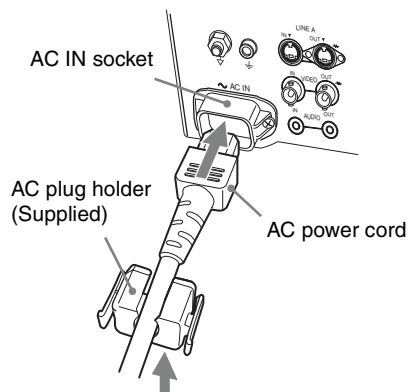
- 2 Attach the unit to the rack after attaching the mounting bracket.



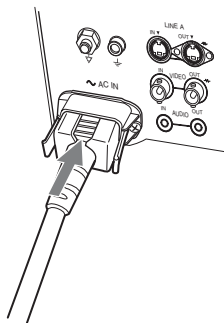
Connecting the AC Power Cord

Connect the supplied AC power cord as illustrated.

- 1 Plug the AC power cord into the AC IN socket on the rear panel. Then, attach the AC plug holder (supplied) to the AC power cord.



- 2 Slide the AC plug holder over the cord until it locks.

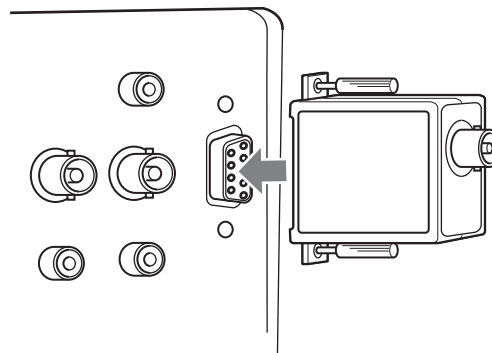


To remove the AC power cord

Pull out the AC plug holder while pressing the lock levers.

Attaching the Input Adaptor

Before attaching the input adaptor, disconnect the power cord.



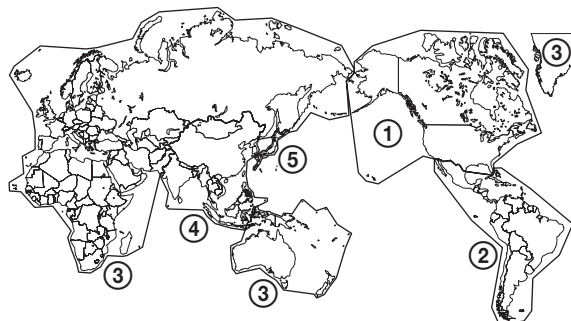
Note

Do not install the equipment other than BKM-320D. It causes to damage the unit or the equipment.

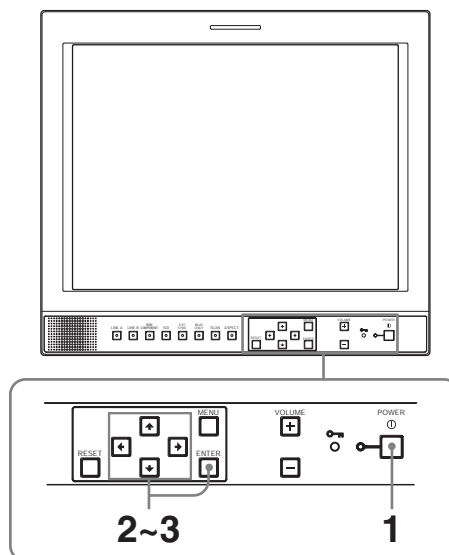
Selecting the Default Settings

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.

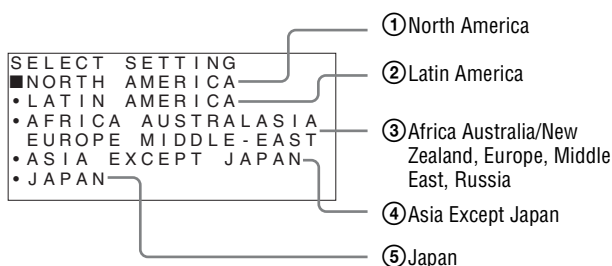
The default setting values for each area



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

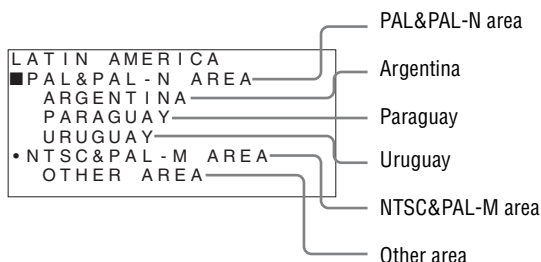


- 1 Press the POWER switch.
The power is turned on and the SELECT SETTING screen appears.

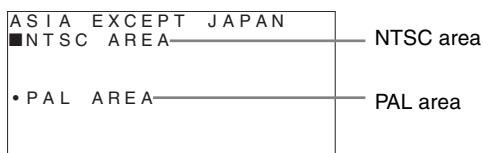


- 2 Press the **↑** or **↓** button to select the area where you intend to use the unit and press the **→** or ENTER button.
If you select either LATIN AMERICA or ASIA EXCEPT JAPAN, one of the following screens appears.

② If LATIN AMERICA is selected:



- 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.



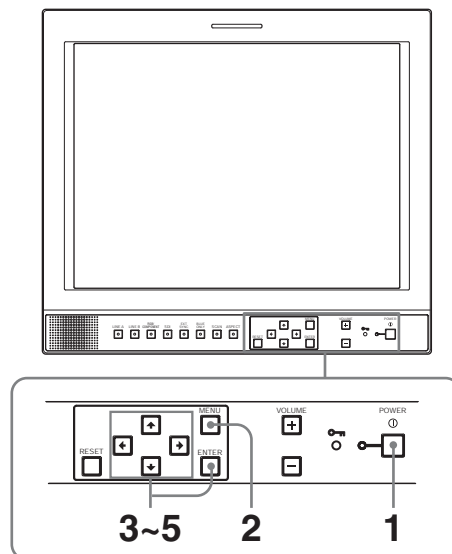
- 3** Press the **↑** or **↓** button to narrow the area further and then press the **→** or **ENTER** button.
 The SELECT SETTING screen disappears and the menu item settings suitable for the selected area are applied.

Note

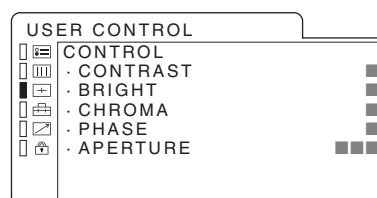
When you have selected the wrong area, set the following items using the menu.
 COLOR TEMP (on page 17)
 COMP LEVEL (on page 18)
 NTSC SETUP (on page 18)
 See “The default setting values for each area” (on page 13) on the setting value.

Selecting the Menu Language

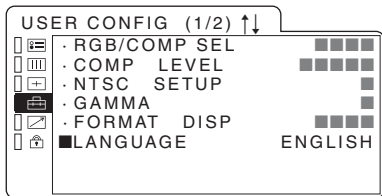
You can select one of seven languages (English, French, German, Spanish, Italian, Japanese, Chinese) for displaying the menu and other on-screen displays.
 The current settings are displayed in place of the ■ marks on the illustrations of the menu screen.



- 1** Press the **POWER** switch to turn on the unit.
- 2** Press the **MENU** button.
 The menu appears.
 The menu presently selected is shown as a yellow button.

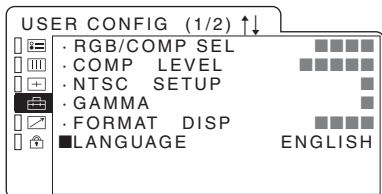


- Press the **↑** or **↓** button to select the USER CONFIG 1/2 (User Configuration 1/2) menu, then press the **→** or ENTER button. The setting items (icons) in the selected menu are displayed in yellow.



- Press the **↑** or **↓** button to select “LANGUAGE,” then press the **→** or ENTER button. The selected item is displayed in yellow.

- Press the **↑** or **↓** button to select a language, then press the ENTER button. The menu changes to the selected language.



To clear the menu

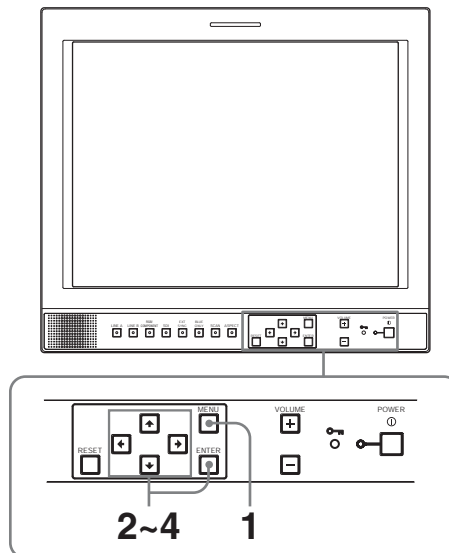
Press the MENU button. The menu disappears automatically if a button is not pressed for one minute.

Using the Menu

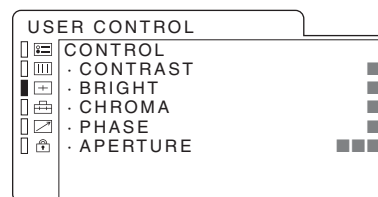
The unit is equipped with an on-screen menu for making various adjustments and settings such as picture control, input setting, set setting change, etc. You can also change the menu language displayed in the on-screen menu.

To change the menu language, see “Selecting the Menu Language” on page 14.

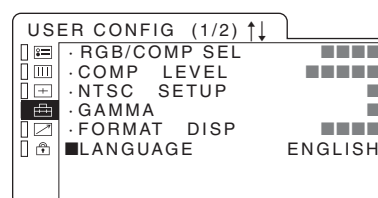
The current settings are displayed in place of the ■ marks on the illustrations of the menu screen.



- Press the MENU button. The menu appears. The menu presently selected is shown as a yellow button.



- Use the **↑** or **↓** button to select a menu, then press the **→** or ENTER button. The menu icon presently selected is shown in yellow and setting items are displayed.



- 3 Press the **↑** or **↓** button to select the item, then press the **→** or ENTER button.
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 **↑** button.

To decrease the number, press the **↓** button.

Press the ENTER button to confirm the number, then restore the original screen.

When changing the setting:

Press the **↑** or **↓** button to change the setting.

Press the ENTER button to confirm the setting.

Notes

- An item displayed in blue cannot be accessed. You can access the item if it is displayed in white.
- If the key inhibit has been turned on, all items are displayed in blue. To change any of the items, turn the key inhibit to OFF first.

For details on the key inhibit, see page 19.

To clear the menu

Press the MENU button.

The menu disappears automatically if a button 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 RESET button while you are adjusting any of the menu items resets the menu item to the previous setting.

Adjustment Using the Menus

Items

The screen menu of this monitor consists of the following items.

 **STATUS (the items indicate the current settings.)**

FORMAT
COLOR TEMP
GAMMA
COMP LEVEL
NTSC SETUP
RGB/COMP SEL
SCAN MODE
DISPLAY
OPTION

 **COLOR TEMP/BAL**

COLOR TEMP
MANUAL ADJ

 **USER CONTROL**

CONTROL

 **USER CONFIG**

RGB/COMP SEL
COMP LEVEL
NTSC SETUP
GAMMA
FORMAT DISP
LANGUAGE
SCAN
PIC DELAY MIN

 **REMOTE PARALLEL**

1 PIN
2 PIN
3 PIN
4 PIN
6 PIN
7 PIN
8 PIN

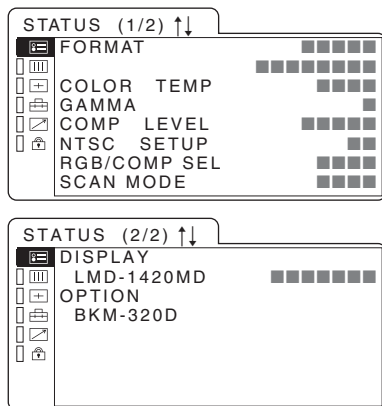
KEY INHIBIT

KEY INHIBIT

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:



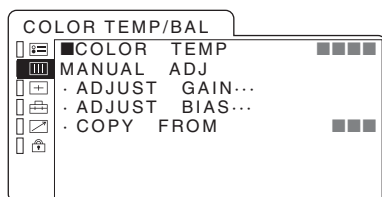
- Signal format
- Color temperature
- Gamma
- Component level
- NTSC setup
- RGB/COMP SEL
- Scan mode
- Display
- Option

COLOR TEMP/BAL menu

The COLOR TEMP/BAL menu is used for adjusting the picture white balance.

You need to use the measurement instrument to adjust the white balance.

Recommended: Konicaminolta color analyzer CA-210

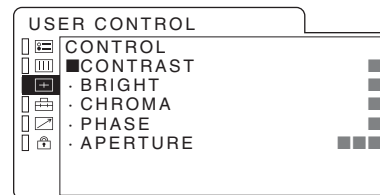


Submenu	Setting
COLOR TEMP	Select the color temperature from among HIGH, LOW, LOW2 and USER setting. <ul style="list-style-type: none"> • HIGH (D93 or equivalent) • LOW (D65 or equivalent) • LOW2 (D56 or equivalent) • USER
MANUAL ADJ	If you set the COLOR TEMP to USER setting, the item displayed is changed from blue to white, which means you can adjust the color temperature. <ul style="list-style-type: none"> • ADJUST GAIN...: Adjusts the color balance (GAIN). • ADJUST BIAS...: Adjusts the color balance (BIAS). • COPY FROM: If you select HIGH, LOW or LOW2, the white balance data for the selected color temperature will be copied in the user setting.

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.

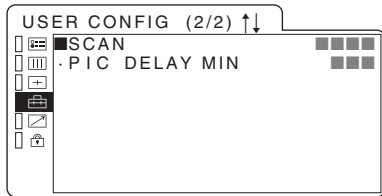
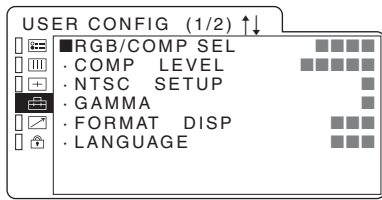


Submenu	Setting
CONTROL	You can adjust the picture. <ul style="list-style-type: none"> • CONTRAST: Adjusts the picture contrast. • BRIGHT: Adjusts the picture brightness. • CHROMA: Adjusts color intensity. The higher the setting, the greater the intensity. The lower the setting, the lower the intensity. • 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. <p>For details of input signals and adjustable/setting items, see page 9.</p>

USER CONFIG menu

You can select a language, etc.

Items that cannot be adjusted depending on the input signal are displayed in blue.



Submenu	Setting
RGB/COMP SEL	When a signal input via the IN (input) connector of the RGB/COMPONENT connector is being monitored, based on the signal being input, select RGB or COMP.
COMP LEVEL	Select the component level from among three modes. <ul style="list-style-type: none"> • 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.
GAMMA	Selects the appropriate gamma mode. You can select from among 5 settings. When "3" is selected, the setting is roughly same as the gamma mode of the CRT (2.2).
FORMAT DISP	Select the display mode of the signal format. <ul style="list-style-type: none"> • ON: The format is always displayed. • OFF: The display is hidden. • AUTO: The format is displayed for about 10 seconds when the input of the signal begins.
LANGUAGE	You can select the menu or message language from among seven languages. <ul style="list-style-type: none"> • ENGLISH: English • DEUTSCH: German • FRANÇAIS: French • ITALIANO: Italian • ESPAÑOL: Spanish • 日本語 : Japanese • 中文 : Chinese

Submenu	Setting
SCAN	Enlarge a 4:3 aspect ratio picture to a 16:9 aspect ratio picture. Select from "OFF" and "ZOOM" mode.
PIC DELAY MIN	Selects to set the delay by the picture processing to the minimum level when the signal is input. <ul style="list-style-type: none"> • OFF: Mode for giving precedence to the picture quality (recommended mode). It takes longer than "ON" for processing the picture. • ON: The processing time is short. Line flicker and after-image may be displayed.

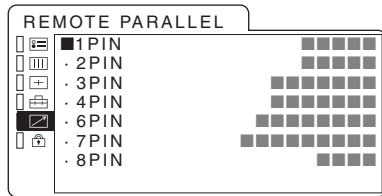
Scan mode image

		Input	
Output	NORMAL SCAN (5% OVERSCAN)		
	UNDER SCAN		
	ZOOM	—	

✍️ REMOTE PARALLEL menu

Select the PARALLEL 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.

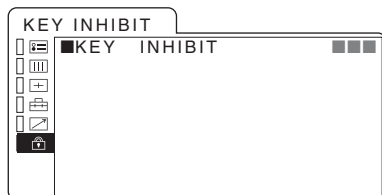


- --- (“---”: No function is assigned.)
- LINE A
- LINE B
- RGB/COMP
- 16:9
- 4:3
- UNDER
- NORMAL
- ZOOM
- TALLY
- EXT SYNC
- BLUE ONLY
- SDI

Note

If you use the PARALLEL REMOTE function, you need to connect cables. For more details, see page 21.

🔒 KEY INHIBIT menu



You can lock the setting so that they cannot be changed by an unauthorized user.

Select OFF or ON.

If you set ON, all items are displayed in blue, indicating the items are locked.

Troubleshooting

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

- **The display is colored in green or purple** → By pressing RGB/COMPONENT button, select the correct input with the RGB/COMP SEL setting in the USER CONFIG menu.
- **The unit cannot be operated** → The key protection function works. Set the KEY INHIBIT setting to OFF in the KEY INHIBIT menu.

Specifications

Picture performance

LCD panel	a-Si TFT Active Matrix
Picture size	14 type 283 × 212 × 354 mm (W/H/ Diagonal) (11 ¹ / ₄ × 8 ³ / ₈ × 14 inches)
Resolution	640 × 480 dots (VGA)
Viewing angle	85°/85°/85°/85° (typical)
Scan	Under -3 % Normal 5 %
Aspect ratio	4:3
Display color	16,200,000

Input/output connectors

Input

LINE A input connectors	
Y/C input	4-pin mini-DIN (1)
VIDEO input	BNC type (1), 1 Vp-p ±3 dB, negative synchronization
AUDIO input	RCA pin (1), -5 dBu 47 kilohms or higher
LINE B input connectors	
VIDEO input	BNC type (1), 1 Vp-p ±3 dB, negative synchronization
AUDIO input	RCA pin (1), -5 dBu 47 kilohms or higher
RGB/COMPONENT input connectors	
RGB input	BNC type (3) 0.7 Vp-p ±3 dB, (Sync On Green, 0.3 Vp-p negative sync.)
Component input	0.7 Vp-p ±3 dB, (75 % chrominance standard color bar signal)
AUDIO input	RCA pin (1), -5 dBu 47 kilohms or higher
OPTION AUDIO input jacks	RCA pin (2), -5 dBu 47 kilohms or higher
EXT SYNC input connector	BNC type (1), 0.3 to 4 Vp-p negative polarity binary
PARALLEL REMOTE input terminal	
Parallel remote	Modular connector 8-pin (1)

Output

LINE A output connectors	
Y/C output	4-pin mini-DIN (1), Loop-through, with 75 ohms automatic terminal function
VIDEO output	BNC type (1), Loop-through, with 75 ohms automatic terminal function
AUDIO output	RCA pin (1), Loop-through
LINE B output connectors	
VIDEO output	BNC type (1), Loop-through, with 75 ohms automatic terminal function
AUDIO output	RCA pin (1), Loop-through
RGB/COMPONENT output connectors	
RGB/Component output	BNC type (3), Loop-through, with 75 ohms automatic terminal function
AUDIO output	RCA pin (1), Loop-through
EXT SYNC output connector	BNC type (1), Loop-through, with 75 ohms automatic terminal function
Built-in speaker output	0.5 W (mono)

General

Power	AC100 – 240 V, 50/60 Hz
Power consumption	Maximum: approx. 51 W 1.2 A – 0.6 A
Dimensions	Approx. 343 × 354 × 264 mm (not including the projection parts) (13 ⁵ / ₈ × 14 × 10 ¹ / ₂ inches) (w/h/d)
Mass	Approx. 6.8 kg (14 lb 16 oz)
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 55 °C (-4 °F to 131 °F)

Humidity 0% to 90%

Pressure 700 hPa to 1060 hPa

Accessories supplied

AC power cord (1)

AC plug holder (2)

Instructions for Use (1)

CD-ROM (1)

Quick Reference (1)

When you First Use the Monitor (1)

Warranty Card (1)

Using the CD-ROM Manual (1)

Sales Companies Guide (1)

Optional accessories

Rack mount bracket MB-526

SDI input adaptor BKM-320D

Wiring required to use the Remote Control

Connect the function you want to use with a Remote Control to the Ground (Pin 5).

Medical Specifications

Protection against electric shock:

Class I

Protection against harmful ingress of water:

Ordinary

Degree of safety in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide:

Not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide

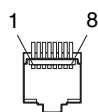
Mode of operation:

Continuous

Design and specifications are subject to change without notice.

Pin assignment

PARALLEL REMOTE terminal
Modular connector
(8-pin)



Pin number	Functions
1	Designating LINE A input signal
2	Designating LINE B input signal
3	Designating RGB/COMPONENT input signal
4	16:9
5	GND
6	4:3
7	Selecting under
8	Selecting normal

You can allocate functions using the REMOTE PARALLEL menu (see page 19).

Video signal formats

The unit is applicable to the following signal formats.

Input						
System	Total lines	Active lines	Frame rate	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)

Output			
System	Effective picture size	Frame rate	Scanning format
575/50I (PAL)	640 × 480	50	Progressive
480/60I (NTSC)	640 × 480	60	Progressive

When an optional input adaptor is installed, the unit is applicable to the following signal formats.

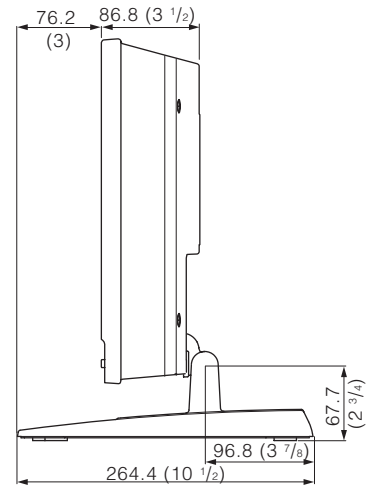
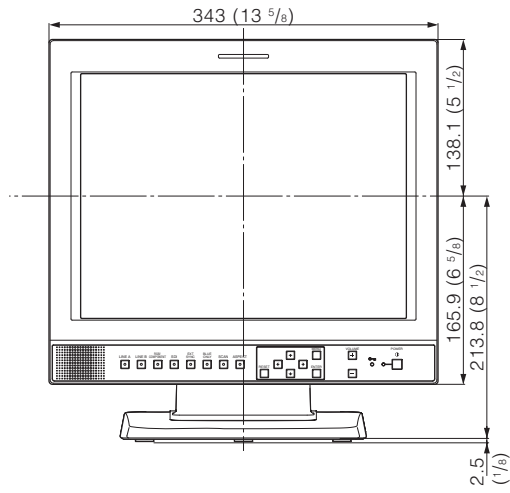
When BKM-320D is installed

Input	
System	Signal standard
575/50I	ITU-R BT.656
480/60I	SMPTE 259M

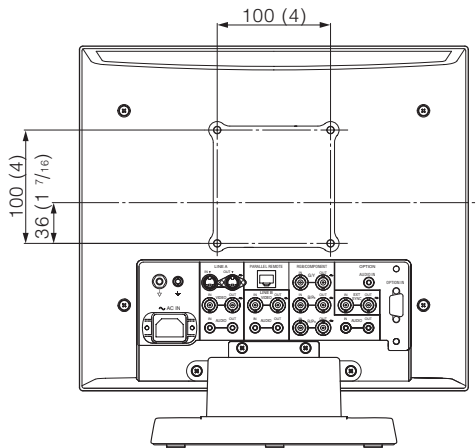
Dimensions

Side

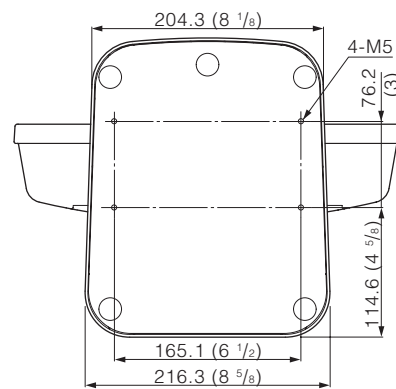
Front



Rear



Bottom



Unit: mm (inches)

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