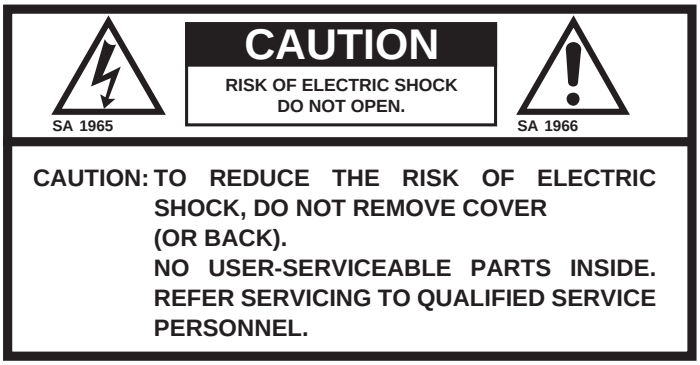
MODEL

HLM-2450WB

FULL HD MULTI FORMAT
LCD COLOR MONITOR

OPERATION MANUAL

Ikegami




SA 1965

The lightning flash with arrowhead inside a triangle is intended to warn the user that parts inside the product are dangerous and many cause electric hazards.


SA 1966

The exclamation mark inside a triangle is intended to inform users that important operating and servicing instructions are provided with the equipment.

WARNING: FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS (REFER TO SERVICE LITERATURE).

DECLARATION of CONFORMITY:

The "CE" mark means the products as mentioned below will meet the intent of the following Directives and Standards.
Inrush current according to EN55103-1 Annex B is as follows.
HLM-2450WB : 10.6 A

Directives : 93/68/EEC, 2004/108/EC, 92/31/EEC for EMC (electromagnetic compatibility)
2006/95/EC for Low voltage (Safety)

Standards : HLM-2450WB: EN55103-1-E4, EN55103-2-E4, EN60950-1

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR WATER.

Disposal of used Electric and Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product, or in the related documents in the package, indicates that this product shall not be treated as normal household waste. Instead, it should be taken to a proper applicable collection point or depot for the recycling of electric and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent possible negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.
For more detailed information about recycling of this product, please contact your local city authority, your household waste disposal service or the place where you purchased the product.

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

CAUTION;
ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PART RESPONSIBLE FOR COMPLIANCE COULD VOID THE USERS AUTHORITY TO OPERATE THE EQUIPMENT.

IMPORTANT SAFETY INSTRUCTIONS

1. General

1) Read all instructions provided.
2) Save these instructions for future use.
3) Follow all warnings and instructions marked on the television equipment.
4) Never insert objects of any kind into this television monitor through cabinet slots as they may come in contact with dangerous voltage points or short out parts, resulting in fire or electric hazards, Never spill liquid of any kind on the television monitor.
5) Do not attempt to service this television monitor yourself as operating or removing covers many expose you to dangerous voltage or other hazards, Refer all servicing to qualified service personnel.
6) Do not use attachments not recommended by the television equipment manufacturer as they may result in the risk of fire, electric shock, or injury to persons.
7) This television monitor has been preadjusted to meet the respective broadcasting standard signals. So, it cannot be used with the signals of different broadcasting standards.
8) When keeping or transporting the unit for a long time, pack it in the supplied carton or equivalent.

2. Power supply

1) This television equipment should be operated only from the type of power source indicated on the marking label.
2) This television equipment is provided with a three-wire grounding type plug with a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
   Do not defeat the safety purpose of the grounding-type plug.
3) When connecting and disconnecting the power cable, be sure to hold the plug.
4) Do not allow anything to rest on the power cord. Do not place this television equipment where the cord will be abused by persons walking on it.
5) For added protection for this television equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
   This will prevent damage to the equipment due to lightning and power-line surges.
6) Do not overload wall outlets and extension cords as this can result in fire or electric shock.

3. Usage and location

1) Do not use this television equipment near water - for example, near a bath tub, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, or the like.
2) Do not place this television equipment on an unstable cart, stand, or table. The television equipment may fall, causing serious injury to children and adults, and serious damage to the equipment. Use only with a cart or stand recommended by the manufacture, or sold with the television equipment. Wall or shelf mounting should follow the manufacture's instructions, and should use a mounting kit approved by the manufacture.
   Television equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

3) Slots and openings in the cabinet and the back or bottom are provided for vitiation, and to ensure reliable operation of the monitor and to protect it from overheating, these openings should never be blocked or covered. The openings should never be blocked by placing the television equipment on a bed, sofa, rug, or other similar surface. (This television equipment should never be placed near or over a radiator or heat register.) This television equipment monitor should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.

IMPORTANT SAFETY INSTRUCTIONS

4) Avoid operating or placing (keeping) in a hot (+40℃ or over) or cold (less than 0℃), high vibration, or dusty place. Avoid operating or storing in a place exposed to direct sunlight.
5) If an image of extremely high brightness is displayed on the screen for a long time, the panel may get burned in.

4. Cleaning

1) Unplug this television equipment from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
2) Do not use thinner or benzene for cleaning. Otherwise, the cabinet may deform or the paint may peel away.

5. Repair

1) Unplug this television monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:
   a. When the power cord or plug is damaged or frayed.
   b. If liquid has been spilled into the television.
   c. If the television monitor has been exposed to rain or water.
   d. If the television does not operate normally by following the operating instructions.
   Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television monitor to normal operation.
   e. If the television monitor has been dropped or the cabinet has been damaged.
   f. When the monitor exhibits a distinct change in performance - this indicates a need for service.
2) When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacture that have the same characteristics as the original part.
   Unauthorized substitutions may result in fire, electric shock, or injury to persons.
3) Upon completion of any service or repairs to this monitor, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.
4) For repair service, contact **Ikegami**'s authorized sales representative or **Ikegami** service desk directly.

PRECAUTIONS FOR OPERATIONS

1) Never let this unit fall or subject it to strong shock.

2) Do not remove the cabinet unless necessary. High-voltage parts are contained in the cabinet and they are very dangerous if you touch then. Only qualified service engineers are allowed to adjust the internal parts of the cabinet.

3) This color monitor has been adjusted to signals conforming to each broadcasting standard. It cannot be used for signals of different broadcasting standards. Be sure to operate the color monitor within the voltage range marked on its back.

4) If cabinet or screen is dirty, wipe with soft cloth. At this time, avoid using benzene or thinner, otherwise the paint may peel away.

5) Note that, if video signals with high luminance are monitored on the LCD panel over a long period of time, the panel may burn in the image.

6) The socket-outlet shall be installed near the equipment and shall be easily accessible.

7) Avoid using or storing this unit in the following places:
   - Hot (+40℃ or more) or cold (0℃ or less) places, especially where this unit may be exposed to the direct rays of the sun.
   - Humid and dusty places.
   - Places where there is considerable vibration.
   - Places exposed to rain or water.
   - When storing or transporting this unit, pack it in the supplied carton or equivalent.

8) If no image can be monitored even after performing user adjustment or the unit appears faulty, do not dismantle this unit by yourself. In such cases, contact the **Ikegami** service desk.

9) Should this unit fail within one year after delivery, it will be repaired free of charge unless the malfunction was caused by mishandling or misuse of the user.
   However, the fuses are not covered by the warranty.

10) The specifications and appearance of this unit may be subject to change for further improvement without prior notice.

Cautions for Rack-Mount.

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Precautions Upon Use

In order to use the monitor safely, read through this manual and pay attention to the following points in particular.

1. **Do not use any power supply other than the specified one (AC).**

2. **Do not give a shock to the monitor.**
   Be very careful to keep the monitor from shocks because glass is used inside the LCD.

3. **Do not use or store the monitor in the following places.**
   Place where the ambient temperature is out of spec
   When installing the monitor on a monitor shelf, switcher table, rack, etc., make sure in advance that the temperature of the installation location is within the specified range.
   In the case of an outdoor setup, even if the ambient temperature is within the specified range, the inside of the monitor may be heated by direct sunlight. Therefore, keep radiation in mind. (Avoid direct sunlight.)
   Never block the air outlet at the rear of the monitor and the air inlet at the side. Make sure in particular that a blackout curtain or the like does not block the air outlet.
   Place exposed to rain, snow or high humidity
   Use of the monitor in such a place will cause electric leakage or failure.

4. **Avoid exposing the LCD screen to direct sunlight.**
   Exposure of the LCD screen to direct sunlight for a long time will degrade the film. Therefore be careful of direct sunlight when using the monitor outdoors.

5. **Cautions in handling the front protective panel**
   Be careful not to touch the LCD panel front surface with bare hands, unless necessary. When wiping the dust off the surface, use soft, dry cloth and take care not to rub the surface strongly. Do not use thinner or benzene.

6. **Do not touch liquid crystal leaked from the monitor's display surface.**
   If the monitor's display surface is accidentally broken and the liquid crystal leaks, be careful never to put the liquid in your mouth, inhale it and allow it on your skin. If the liquid gets into your eye or mouth, immediately rinse it with water and get medical attention.
   If the liquid contacts your skin or clothes, immediately wipe it off using alcohol or the like and wash the stained spot with soap and water. Do not leave the liquid intact, because otherwise your skin or clothes may be affected.

7. **Do not display the same pattern for a long time.**
   Note that residual image may be generated if the same pattern is displayed for a long time.
   ・Turn off the power when the monitor is not used.
   To avoid residual images, preferably take the following measures.
   ・Change the screen regularly.
   ・Display the whole screen in white.

8. **Avoid operation at low temperatures.**
   Note that the backlight function will be degraded at low temperatures, leading to shorter service life. It is recommended to use the monitor at normal temperatures.

9. **Avoid operation or storage in a place exposed to corrosive gas.**

Operation or storage in a place where any corrosive gas such as sulfur dioxide, hydrogen sulfide, chlorine or ammonia is generated may lead to a significant reduction in the monitor service life. It may also cause failure or electric leakage.

Also avoid using the monitor in a location exposed to high salty wind.

10. **Do not use this monitor for such applications as space appliance, nuclear control system as any medical equipment involving human life.**

Quality of LCD panel

Note that because the LCD panel mounted on the monitor is manufactured through the use of high-precision technology, 99.99% or more of the pixels are effective, but 0.01% or less of them may be lacking in brightness or lit up constantly.

Internal fan

The internal fan does not run constantly but automatically starts running when the internal temperature of the monitor rises. When the environmental temperature is low, the internal fan may not be running, which indicates no fault condition.

At power-on, the fan rotates for a moment for checking its own performance.

In the case of outdoor use, even if the ambient temperature is low, the fan may start running when the internal temperature of the monitor rises.

Suppose that the fan does not operate properly at power-on or at high temperatures. In such case, the message "FAN ERROR!" will appear at the top of the screen.

The brightness of the backlight may be reduced in order to keep the internal temperature of the motor from rising.

If the message "FAN ERROR!" is displayed, contact your dealer or **Ikegami** service desk.

Warranty

If the product should fail within one year from the date of delivery in spite of the proper use, the manufacturer will repair the product free of charge. Even if the product is covered by the warranty, however, the customer will be charged for labor and parts in the following cases.

1. Failure and damage caused by the following:
   - ・Improper use
   - ・Repair or modification performed by the customer
   - ・Transportation, transfer, falling, etc. after the purchase of the product
   - ・External factors such as natural disasters and over-voltage
2. Aged deterioration of the liquid crystal panel and backlight (change in brightness, increase in the number of luminescent spots and dark points, etc.)
3. Damage, discoloration and degradation of the cabinet including the LCD front protective panel
4. Replacement of the accessories and fuse

   If no image comes out in spite of routine adjustment or if the product should seem to fail, contact your dealer or **Ikegami** service desk.

Accessories

The monitor comes with the following accessories. Be sure that they are included.

1. Tilt stand (to be set up)
2. Operation manual: 1 copy
3. Parallel remote connector: 1 set
4. Power cable: 1 pc.

* VGA, SVGA and XGA, WXGA, UXGA, WUXGA are registered trademarks of International Business Machines Corporation.

* Specifications and external dimensions are subject to change without prior notice.

CONTENTS

1. Outline

1-1. Outline

This 24-inch type HDTV/SDTV multi-format color monitor employs a full high-definition liquid crystal panel for reduction in thickness, weight and power consumption, and is designed for use in various spaces such as sub-control rooms, editing rooms, monitor wall, transmission control desks, and outside broadcast vans.

This monitor is compatible with the functions and operation of the HTM/TM series CRT monitors, so that it can realize the functions necessary for a broadcasting service monitor with conventional operation.

1-2. Features

(1) High performance liquid crystal panel

Employed is 10bit liquid crystal panel with a high resolution of Wide-UXGA (1920 x 1200 dots) that is excellent in basic performances such as high brightness, high contrast, wide viewing angle, quick response and good color reproducibility. Accordingly, both HDTV and PC signals can be displayed on realistic images without having to resizing the input pixels. This monitor is thus best suited for non-linear editing and similar applications.

(2) Multi-format

The monitor supports various broadcasting formats.

The monitor automatically identifies various types of input signal formats. (optional component input: set on MENU)

- 480i/59.94 (NTSC)
- 575i/50 (PAL-B)
- 480p/59.94 (*1)
- 1080psF/30
- 1080psF/25
- 1080psF/24, 23.98
- 1080p/60, 59.94
- 1080p/50
- 1080p/30, 29.97
- 1080p/25
- 1080p/24, 23.98
- 1035i/60, 59.94
- 1080i/60, 59.94
- 1080i/50
- 720p/60, 59.94
- 720p/50
- 720p/30, 29.97
- 720p/24, 23.98 (*2)
- 720p/25

(*1) RGB/YPbPr input only

(*2) SDI input only

(3) Diverse input sources

The monitor is standard equipped with two SDI signal (compatible with both HD/SD 4:2:2) inputs and two analog composite signal inputs. It also comes standard with one DVI-D signal input (VGA/SVGA/XGA/WXGA/SXGA/UXGA/WUXGA).

The multi-SDI input (*) compatible with 3G-SDI (single), analog PC input and RGB/YPbPr inputs are optionally available.

(4) Compatibility with embedded audio

Standard equipped with an embedded audio feature, the embedded audio signals multiplexed with HD-SDI signal or SD-SDI (4:2:2) signal can be automatically recognized and the audio output can be heard through the built-in stereo speakers or stereo headphones. The monitor also has a standard embedded audio level meter display on the screen.

Using an optional device, the embedded audio signal may be handled as an analog output (when the EA-240A is mounted) or as an AES/EBU output (when the EA-240D is mounted).

Besides, the optional 3G-SDI (single) multi-SDI module comes in two types: Embedded analog audio output type (D3G-240A) and AES/EBU output type (D3G-240D).

(5) Remote control functions

The monitor can be remote-controlled with the use of four remote control functions. Depending on the place of installation and type of operation, the parallel, serial or wireless mode can be used.

In addition to the conventional parallel remote control (pin assignment by user is possible), the monitor also comes standard with a serial remote input interface that enables remote control with just one BNC coaxial cable.

Up to 99 monitors can be remote-controlled individually or concurrently using an optional serial remote controller SRC-301A/Z simply with Ikagami's various monitors being loop-through connected.

An infrared wireless remote controller RCT-30A is also optionally available.

The RS-485 input/output terminals are also standard designed for control of up to 32 units.

(6) Built-in markers

4:3 (16:9 mode), 13:9, 14:9, 15:9, 16:9 (4:3 mode), 1.85:1 (16:9 mode) and 2.35:1 (16:9 mode) line markers can be displayed.

The monitor can also get the 1%-stepwise safety marker displayed in the range of 80-99% with respect to the line marker area.

The safety markers over the effective screen can be equally preset 1% by 1% in the range of 80-99%.

The monitor also comes standard abundantly with five-part split and ten-part split crosshatch markers useful for location alignment.

(7) User marker display function

Up to 10 different user markers, such as line and box markers, are presettable pixel by pixel to your desired positions and sizes. The line and box drawing settings can be easily made with not just the switch but also the USB mouse. Resulting complicated data may also be saved on a USB memory so that the data can be copied to another monitor or stored in a PC.

This function is optimum for positioning in editing the layout and its display for various types of information such as teleshopping.

* Patent pending

(8) Shadow function

The shadow function is to shade the area other than a 4:3 (16:9 mode), 13:9, 14:9, 15:9 or 16:9 (4:3 mode) marker area on images. The shadow contrast can be set at 0%, 20%, 40% or 60% on the MENU. The use of this function allows you to instantly visualize the image area when converting images with an aspect ratio of 16:9 to those with an aspect ratio of 4:3 or vice versa.

This shadow function can be turned on/off by remote control and prompt switching is therefore realized.

(9) Various built-in test signals

The monitor is standard equipped with color bar signal, grayscale signal with pluge pattern, and window signal. Various adjustments can therefore be made on the monitor alone.

(10) Time code display function

It is possible to display the time code (VITC) multiplexed into SDI signal on the screen.

The display comes in two sizes, large and small, and its brightness in three levels.

(11) Waveform monitor/Vector scope display functions

Waveform monitor of brightness signal can be displayed. The display comes in two sizes, NORMAL and SMALL, and its brightness in three levels. The waveform can also be displayed in any of three selectable positions and in one of two colors: GREEN and WHITE. The vector scope can also be readily displayed.

(12) 2-picture split display function

A previously captured still image and a currently incoming moving image are displayed split onscreen.

Just one monitor serves to compare the pictures from two cameras at once on its screen.

(13) Dot-by-dot display function

All the picture elements of an input signal are displayed 1:1 according to the pixels of the LCD panel without scaling the incoming signal (enlarging or reducing the input signal according to the LCD pixels).

This function is useful in checking transmitted input signals for pixel defects, camera CCD's scratches, etc.

Only the 1080i/p signal is displayed in 1:1 in the normal scanning status.

(14) External memory function

Various data (MENU settings, PRESET data, etc.) can be saved on a USB memory and copied to a PC, on which the data is ready to manage. Such data may also be copied to another monitor.

* Keep in mind that when copying the PRESET data to another monitor, they may be different from monitor to monitor.

(15) USB mouse control

By connecting a commercially available USB mouse to the USB terminal of this monitor, it is possible to perform various adjustments including the "MENU setting," "PRESET data setting," "Input signal switching," and the "Front switch setting" through the use of a mouse. Remote operation of the monitor at a distant position is possible by using a commercially available wireless mouse.

Use of the scroll wheel function of the mouse has significantly improved the user-friendliness of the monitor for making adjustment of various data such as color temperature.

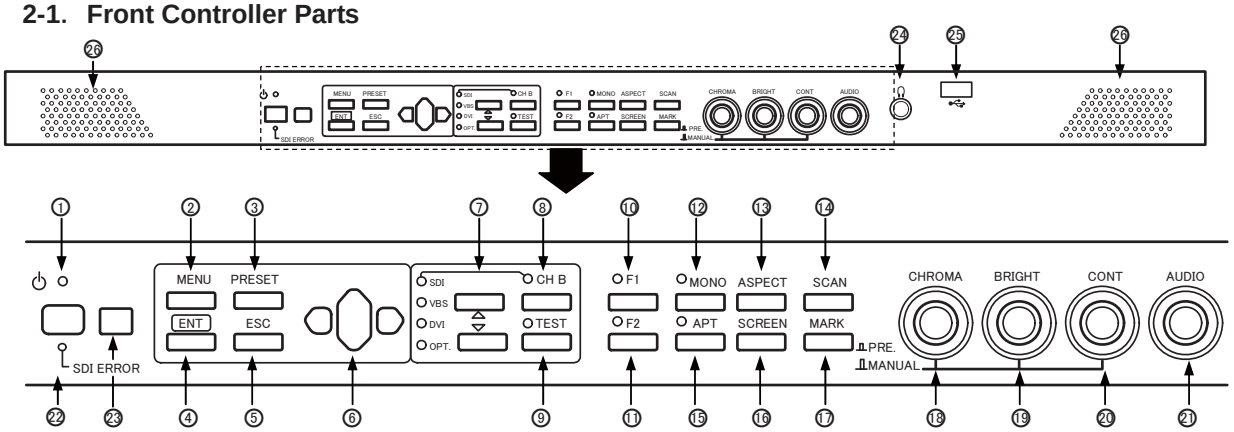
(16) Downmix function

Among the embedded audio 8 channels, 5.1 channel surround audio channel (Lm, Rm, C, Ls, and Rs) has been selected for the stereophonic audio function at the downmix mixing ratio specified by ARIB and ISO/IEC.

The downmix audio signals can be easily output through the speakers built in the monitor or a headphone, or through the analog output (EA-240A or D3G-240A packaged).

2. Names of parts and their Functions

2-1. Front Controller Parts



① **POWER** switch

・Turns on/off the power to the monitor.

※This switch is not for turning on/off the AC power supply to the monitor.

※Several seconds are required for images to appear after power-on.

② **MENU** switch

・Press this switch to display a menu screen or change the menu screen.

※This switch is disabled when the preset menu is displayed.

③ **PRESET** switch

・Press this switch to display the preset menu.

※This switch is disabled when the menu is displayed.

④ **ENT** switch

・Press this switch to execute menu operations.

⑤ **ESC** switch

・Press this switch to exit from a menu.

⑥ **▲ (UP)/ ▼ (DOWN)/ ◀ (LEFT)/ ▶ (RIGHT)** switch

・Use this switch to change menu items or the setting of each item when a menu or preset menu is displayed.

・With the menu off and the marker on, the image pattern can be preset with the ◀ and ▶ switches and the safety marker area with the ▲ and ▼ switches in the range of 80-99%

⑦ **INPUT SELECT** switch

・Use the ▲ and ▼ switches to change input sources.

※"OPT" is enabled when an optional module input is selected.

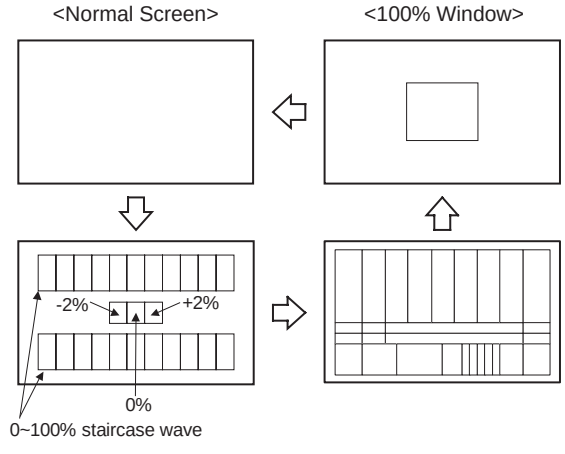
⑧ **CH-B** switch

・Use this switch to change channels in the SDI or VBS input mode.

⑨ **TEST** switch

・Press this switch to display internal test signals.

・The switching between the following three types of signals is done each time this switch is pressed.



⑩ **F1** switch

- Press this switch to select an item preset on the menu.
- For presettable items, refer to "**4-4. Description on MENU 2 Functions**"

⑪ **F2** switch

- Press this switch to select an item preset on the menu.
- For presettable items, refer to "**4-4. Description on MENU 2 Functions**".

⑫ **MONO** switch

- Press this switch to display color signals in black and white.

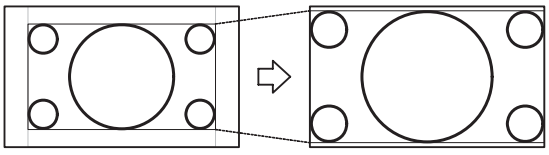
※This function is disabled in the component RGB input or PC input mode.

⑬ **ASPECT** switch

- Use this switch to change image aspect ratios (4:3/16:9/ZOOM).
- Choose between memorizing the settings for each channel and making the settings for all channels on MENU2.

※"ZOOM" magnifies the image area in the 4:3 letterbox.

〈ZOOM〉



※SDTV format signals (480i/575i) only are effective.

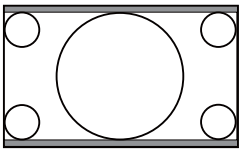
※In the PC input mode, this function is disabled.

⑭ **SCAN** switch

- Press this switch to change image display sizes (normal-scan/under-scan).

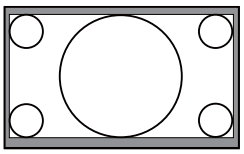
※In the PC input mode, this function is disabled.

<16:9 Nomal-scan>



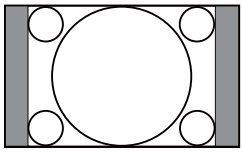
1920 x 1080 pixel display

<16:9 Under-scan>



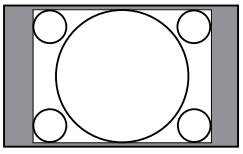
95% pixel in Normal-scan

<4:3 Nomal-scan>



1440 x 1080 pixel display

<4:3 Under-scan>



95% pixel in Normal-scan

⑮ **APT** switch

- Press this switch to select the aperture.
- Set a correction amount on PRESET MENU.

※In the PC input mode, this function is disabled.

⑯ **SCREEN** switch

- Press this switch to display images in R, G or B individually.
- The switching between colors takes place as follows each time this switch is pressed.
  "R only" → "G only" → "B only" → "Normal Screen"

※In the PC input mode, this function is disabled.

⑰ **MARK** switch

- Press this switch to turn on/off markers.
- To change icons, use the ◀ and ▶ switches. Detailed settings are made on MENU 7.

※This function is disabled when an internal test signal is displayed or in the PC input mode.

⑱ **CHROMA** manual control

- This control serves as a manual/preset switch for chroma or a manual data variable control.
- The control pops out when it is pressed and the mode is changed to MANUAL.

⑲ **BRIGHT** manual control

- This control serves as a manual/preset switch for brightness or a manual data variable control.
- The control pops out when it is pressed and the mode is changed to MANUAL.

⑳ **CONT** manual control

- This control serves as a manual/preset switch for contrast or a manual data variable control.
- The control pops out when it is pressed and the mode is changed to MANUAL.
- This control can be an allocation to BACKLIGHT according to the NENU setting.

㉑ **AUDIO** control

- Use this control to adjust the sound volume of the front speaker or the headphones.

※An audio (analog/embedded audio) to be outputted to the speaker must be set on MENU6.

㉒ **SDI ERROR** indicator

- This LED alarm indicator will light up in red in SDI signal transmission error (CRC, TRS, check sum, line number).

If the indicator lights up, check the details on a waveform monitor or the like.

- By turning this setting to MENU2, the monitor can be set so that the front SDI ERROR LED will not be forcefully turned ON even when an SDI ERROR has occurred.

㉓ Infrared receiver of wireless remote control

- When a wireless remote controller (RCT-20A/ RCT-30A) is used, point it towards this receiver.

㉔ Stereo headphones output (stereo mini-jack type)

- Analog audio signals or embedded audio signals are fed out of this terminal.
- The analog and embedded inputs can be selected on MENU6.

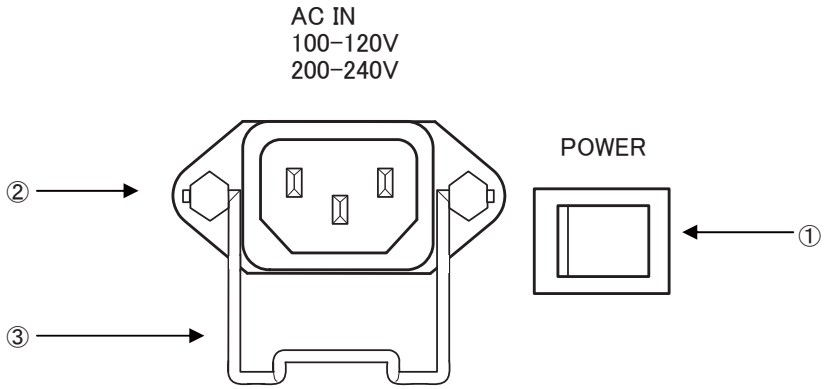
㉕ **USB** terminal

- Connect a USB memory, and the monitor's data can be saved on the USB memory or the data on the USB memory can be downloaded on another monitor.
- Connect a USB mouse, and the user markers can be drawn.

㉖ Stereo speakers

- Analog audio signals or embedded audio signals are fed out of this terminal.
- The analog and embedded inputs can be selected on MENU6.
- With the headphones being connected, no sound is heard from the speakers.

2-2. Rear panel (left bottom)



① MAIN POWER switch

- Turns on/off the AC power supply to the monitor.
- To operate the monitor, turn ON this MAIN POWER switch as well as the POWER switch on the front panel.

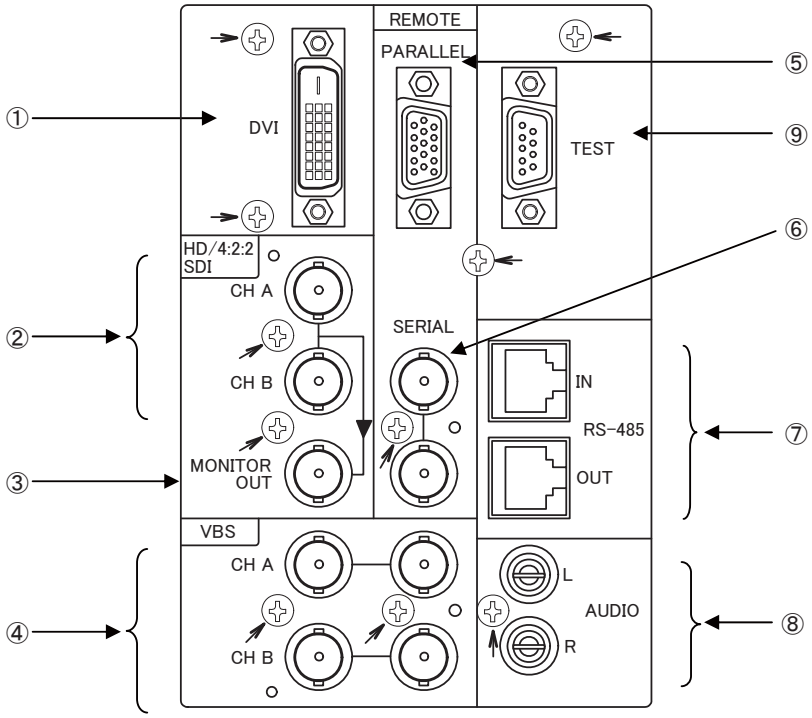
② AC power input

- Insert the provided AC cable here to supply AC power.

③ Lock

- After inserting the AC plug, lock the AC plug with this lock to prevent it from disconnecting.

2-3. Rear panel (video inputs/outputs)



① DVI-D signal input

- This connector is used to connect the DVI-D signal from the PC.
- The compatible formats are referred to in "**7-2 Rated performance (6)**".

② SDI A/B signal input

- Input the HD-SDI or SD-SDI (4:2:2) signal here.
- The format of input signal is automatically identified.

③ SDI signal output

- Output the same selected channel signal from the A/B channel as channel select is made for monitoring.

④ NTSC/PAL-B analog composite input

- Input the NTSC/PAL-B analog composite (VBS) signal here.
- Without the loop through connection in place, connect a terminating plug.

⑤ PARALLEL REMOTE signal input

- Connect the accompanying remote connector here.
- For details of pin connections, refer to "**Data 3: Parallel Remote Pin Function**" or "**4-11. Description of MENU 8 Functions**".
- Make sure the cable used is shielded.

⑥ SERIAL REMOTE signal input

- Connect the BNC cable from the SRC-301A/Z serial remote controller here.
- By adopting the loop through connection, up to 99 monitors can be controlled individually or collectively.
- Without the loop through connection in place, connect a terminating plug.
- Set the monitor ID number on the MENU2 screen.

⑦ RS-485 input/output

- These are used for remote control with RS-485.
- Up to 32 units can be loop-through-connected.
- Without loop-through connection, use the optional terminating device.

※Make sure the cable used is shielded.

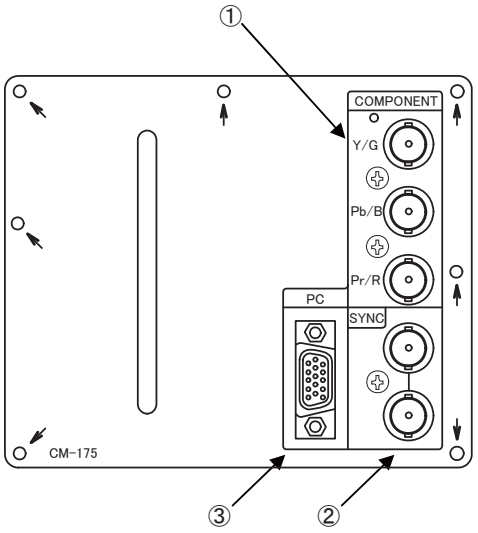
⑧ Analog audio input

- Feed analog audio signals here.

⑨ TEST terminal for factory adjustment

- The TEST terminal is factory adjustment. Connect nothing to this terminal.

2-4. Option (CM-175 input/output)



① Component (YPbPr/RGB) signal input

- Feed component signals.
- Set either YPbPr or RGB on MENU1.
- When the signal format is 1080i/60 or 1035i/60, the 1080i/1035 setting must be made on MENU1.
- To select this input, set to "OPT." with the INPUT SELECT switches (▲ & ▼) on the front panel. Make sure that the "INPUT SELECT" on MENU2 or 9 is set at "VIDEO".
  For this purpose, it is also possible to assign the function keys F1 and F2 on the front panel.

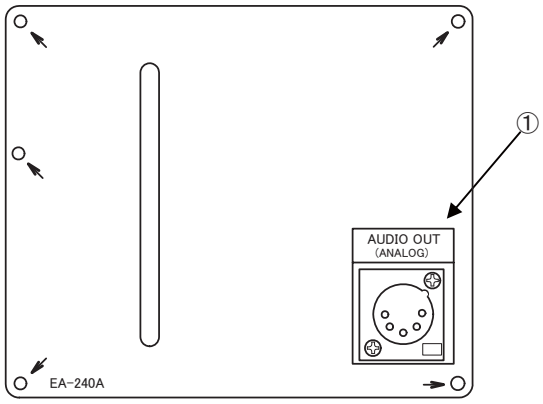
② External sync signal input

- Feed an external sync signal here when externally synchronizing component signals.。
- If not adopting the loop through connection method, connect the terminating plug.
- To switch to EXT SYNC, make the setting on MENU1.
  For this purpose, it is also possible to assign the function keys F1 and F2 on the front panel.

③ Analog PC signal input

- Input the PC signal (analog RGB signal) here.
  As for the compatible format, refer to the "**Data 1: PC Input Signal Compatible Format**".
- To select this input, set to "OPT." with the INPUT SELECT switches (▲ & ▼) on the front panel. Make sure that the "INPUT SELECT" on MENU9 is set at "PC".
  For this purpose, it is also possible to assign the function keys F1 and F2 on the front panel.

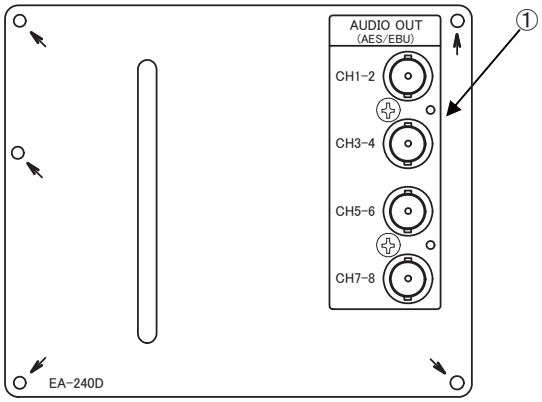
2-5. Option (EA-240A output)



① Embedded analog audio output

- Select one pair of channels out of four paired channels (eight embedded audio channels multiplexed in SDI) in the MENU6. The selected 2-channel analog audio signal is outputted from this connector.
- Use XLR-5-11C or equivalent as an output connector.
- For details of pin connection, refer to the "**Data 2: Embedded analog audio outputs (EA-240A/ D3G-240A)**".
- The output is active. When handling the output unbalanced, use the hot side and ground. (Keep the cold side open.)

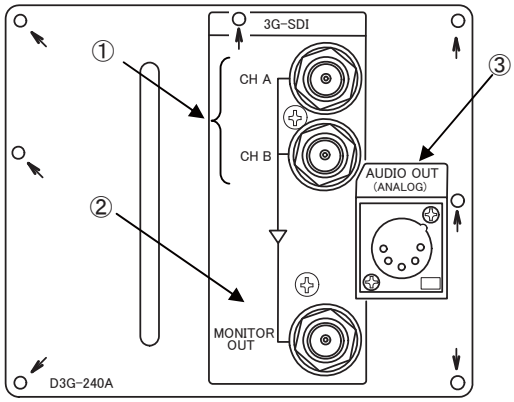
2-6. Option (EA-240D output)



① Embedded AES/EBU output

- Eight embedded audio channels multiplexed in SDI are outputted as digital audio signals in AES/EBU format.
- Consumer format (SPDIF) is not supported.
- Use a converter when connecting the equipment of 110Ω impedance.

2-7. Option (D3G-240A input/output)



① SDI A/B signal input

- Input the 3G-SDI or HD-SDI or SD-SDI (4:2:2) signal here.
- The format of input signal is automatically identified.

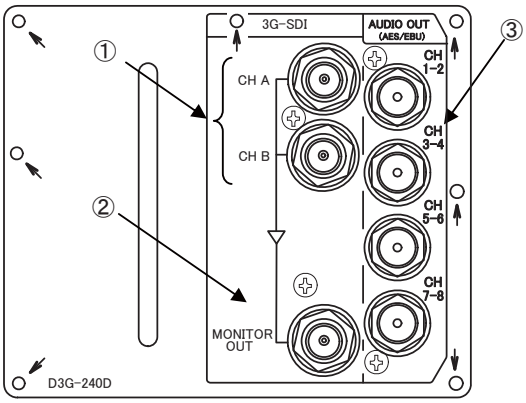
② SDI signal output

- Output the same selected channel signal from the A/B channel as channel select is made for monitoring.

③ Embedded analog audio output

- Select one pair of channels out of four paired channels (eight embedded audio channels multiplexed in SDI) in the MENU6. The selected 2-channel analog audio signal is outputted from this connector.
- Use XLR-5-11C or equivalent as an output connector.
- For details of pin connection, refer to the "**Data 2: Embedded analog audio outputs (EA-240A /D3G240A)**".
- The output is active. When handling the output unbalanced, use the hot side and ground. (Keep the cold side open.)

2-8. Option (D3G-240D input/output)



① SDI A/B signal input

- Input the 3G-SDI or HD-SDI or SD-SDI (4:2:2) signal here.
- The format of input signal is automatically identified.

② SDI signal output

- Output the same selected channel signal from the A/B channel as channel select is made for monitoring.

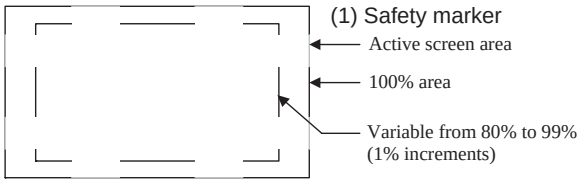
③ Embedded AES/EBU output

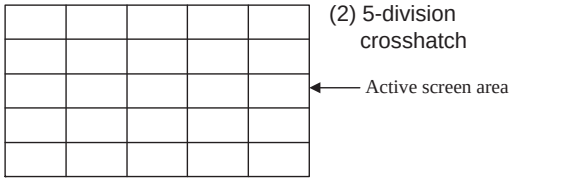
- Eight embedded audio channels multiplexed in SDI are outputted as digital audio signals in AES/EBU format.
- Consumer format (SPDIF) is not supported.
- Use a converter when connecting the equipment of 110Ω impedance.

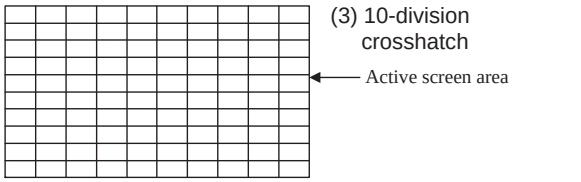
3. Markers

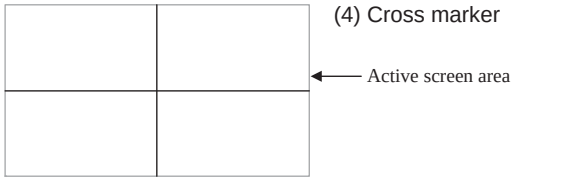
3-1. Types of Markers

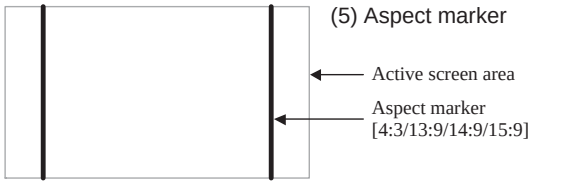
In the 16:9 aspect ratio display mode (HDTV/SDTV)

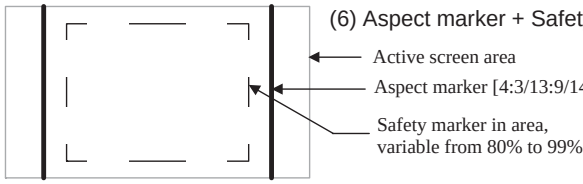


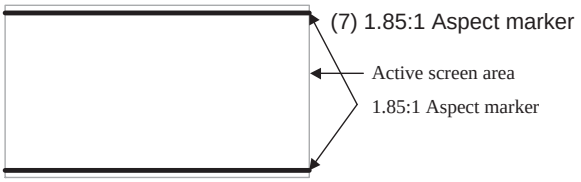


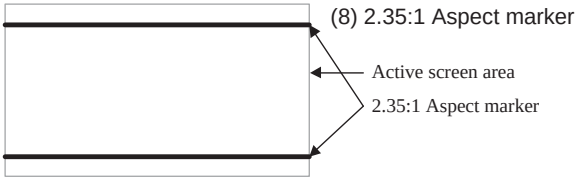




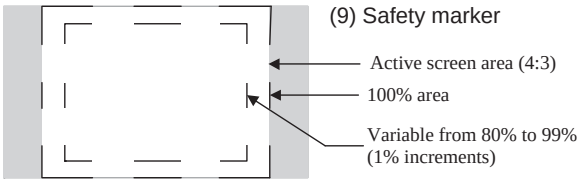


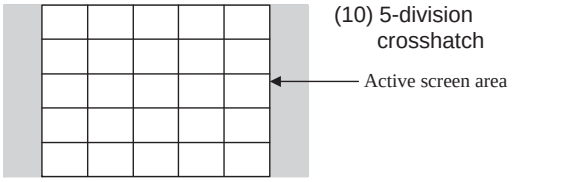


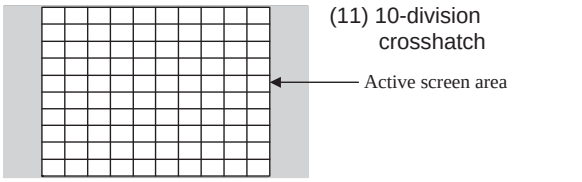


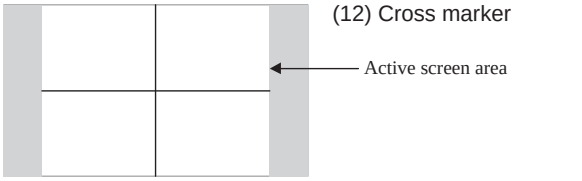


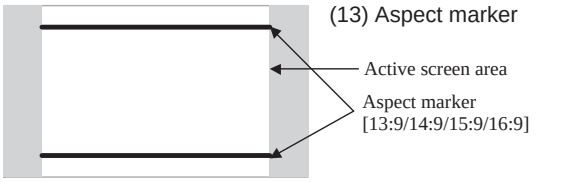
In the 4:3 aspect ratio display mode (SDTV)











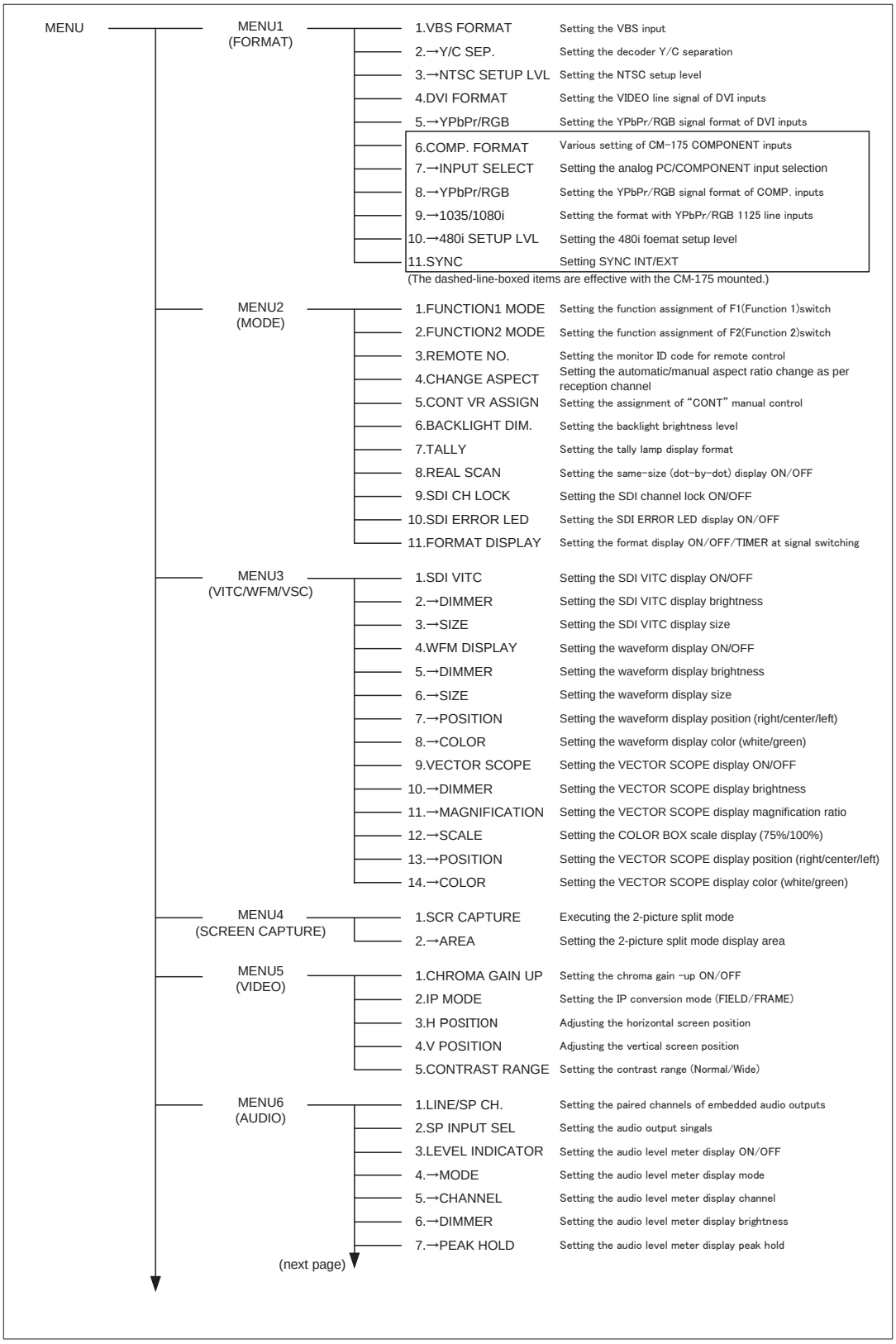
・The displayed markers are set on MENU7.

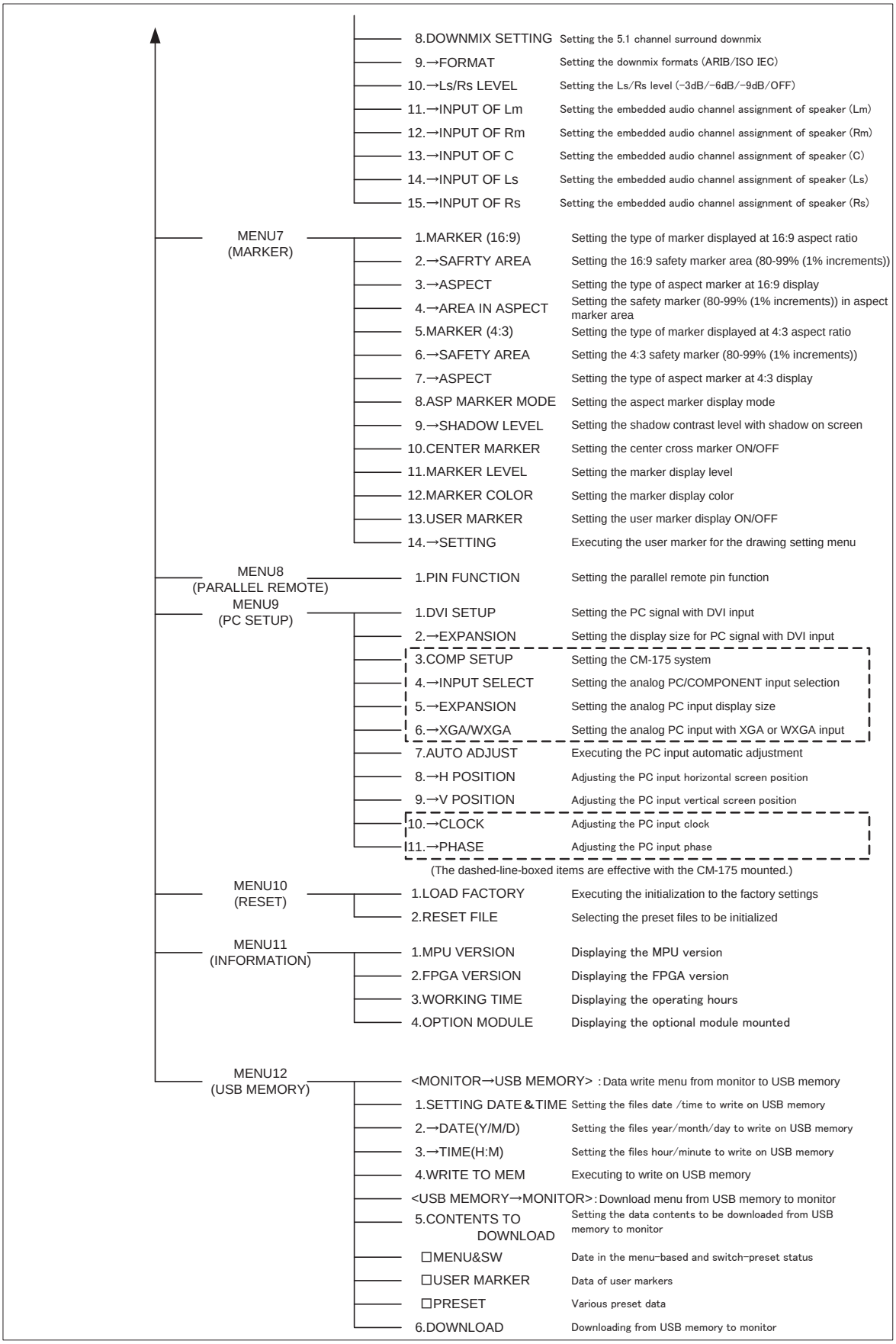
・With no menu onscreen, the image pattern can be changed with the ◀ and ▶ switches, whereas the safety marker percentage setting (1% increments) with the ▲ and ▼ switches.

4. MENU Functions

4-1. List of MENU

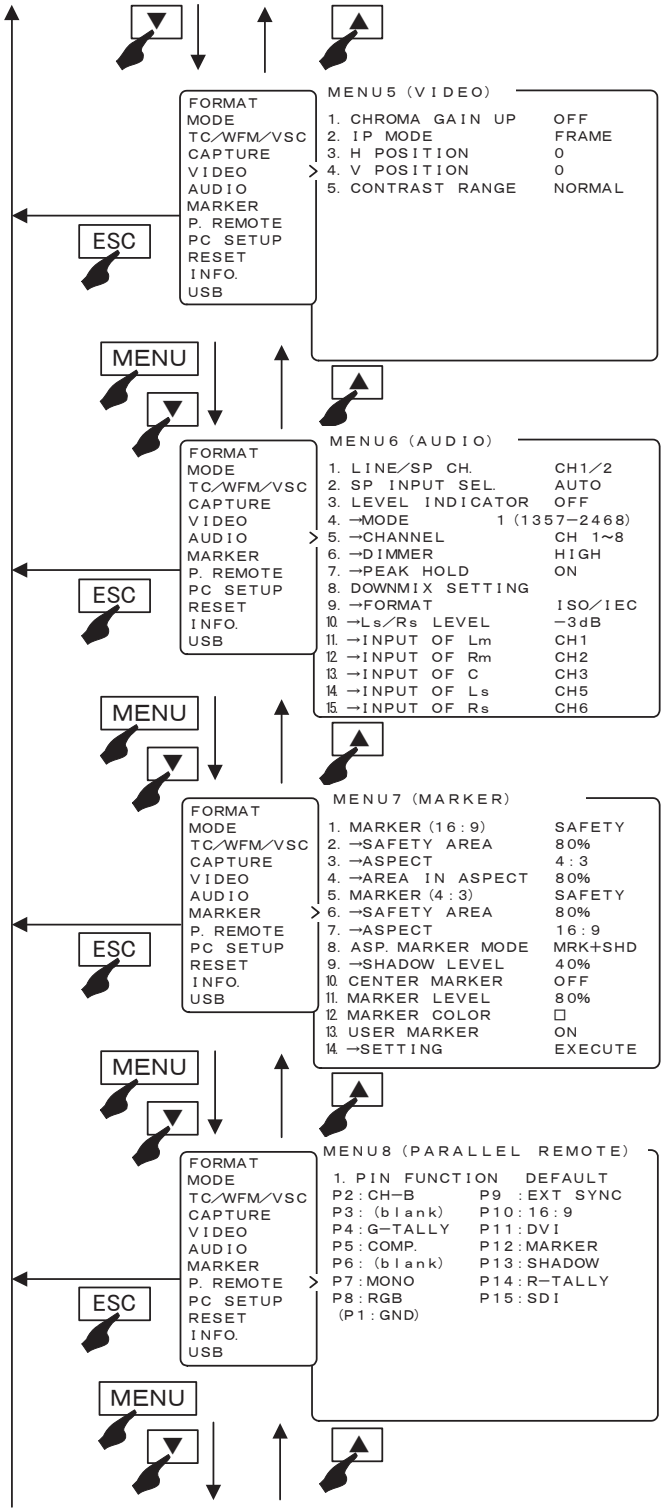
All functions can be executed in the MENU screen.




8.DOWNMIX SETTING Setting the 5.1 channel surround downmix
9.→FORMAT Setting the downmix formats (ARIB/ISO IEC)
10.→Ls/Rs LEVEL Setting the Ls/Rs level (-3dB/-6dB/-9dB/OFF)
11.→INPUT OF Lm Setting the embedded audio channel assignment of speaker (Lm)
12.→INPUT OF Rm Setting the embedded audio channel assignment of speaker (Rm)
13.→INPUT OF C Setting the embedded audio channel assignment of speaker (C)
14.→INPUT OF Ls Setting the embedded audio channel assignment of speaker (Ls)
15.→INPUT OF Rs Setting the embedded audio channel assignment of speaker (Rs)
MENU7 (MARKER)
1.MARKER (16:9) Setting the type of marker displayed at 16:9 aspect ratio
2.→SAFRTY AREA Setting the 16:9 safety marker area (80-99% (1% increments))
3.→ASPECT Setting the type of aspect marker at 16:9 display
4.→AREA IN ASPECT Setting the safety marker (80-99% (1% increments)) in aspect marker area
5.MARKER (4:3) Setting the type of marker displayed at 4:3 aspect ratio
6.→SAFETY AREA Setting the 4:3 safety marker (80-99% (1% increments))
7.→ASPECT Setting the type of aspect marker at 4:3 display
8.ASP MARKER MODE Setting the aspect marker display mode
9.→SHADOW LEVEL Setting the shadow contrast level with shadow on screen
10.CENTER MARKER Setting the center cross marker ON/OFF
11.MARKER LEVEL Setting the marker display level
12.MARKER COLOR Setting the marker display color
13.USER MARKER Setting the user marker display ON/OFF
14.→SETTING Executing the user marker for the drawing setting menu
MENU8 (PARALLEL REMOTE)
1.PIN FUNCTION Setting the parallel remote pin function
MENU9 (PC SETUP)
1.DVI SETUP Setting the PC signal with DVI input
2.→EXPANSION Setting the display size for PC signal with DVI input
3.COMP SETUP Setting the CM-175 system
4.→INPUT SELECT Setting the analog PC/COMPONENT input selection
5.→EXPANSION Setting the analog PC input display size
6.→XGA/WXGA Setting the analog PC input with XGA or WXGA input
7.AUTO ADJUST Executing the PC input automatic adjustment
8.→H POSITION Adjusting the PC input horizontal screen position
9.→V POSITION Adjusting the PC input vertical screen position
10.→CLOCK Adjusting the PC input clock
11.→PHASE Adjusting the PC input phase
(The dashed-line-boxed items are effective with the CM-175 mounted.)
MENU10 (RESET)
1.LOAD FACTORY Executing the initialization to the factory settings
2.RESET FILE Selecting the preset files to be initialized
MENU11 (INFORMATION)
1.MPU VERSION Displaying the MPU version
2.FPGA VERSION Displaying the FPGA version
3.WORKING TIME Displaying the operating hours
4.OPTION MODULE Displaying the optional module mounted
MENU12 (USB MEMORY)
<MONITOR→USB MEMORY> : Data write menu from monitor to USB memory
1.SETTING DATE&TIME Setting the files date /time to write on USB memory
2.→DATE(Y/M/D) Setting the files year/month/day to write on USB memory
3.→TIME(H:M) Setting the files hour/minute to write on USB memory
4.WRITE TO MEM Executing to write on USB memory
<USB MEMORY→MONITOR> : Download menu from USB memory to monitor
5.CONTENTS TO DOWNLOAD Setting the data contents to be downloaded from USB memory to monitor
☐MENU&SW Date in the menu-based and switch-preset status
☐USER MARKER Data of user markers
☐PRESET Various preset data
6.DOWNLOAD Downloading from USB memory to monitor

4-2. Flow of MENU Operations

MENU can be switched as follows using the **MENU** switch.

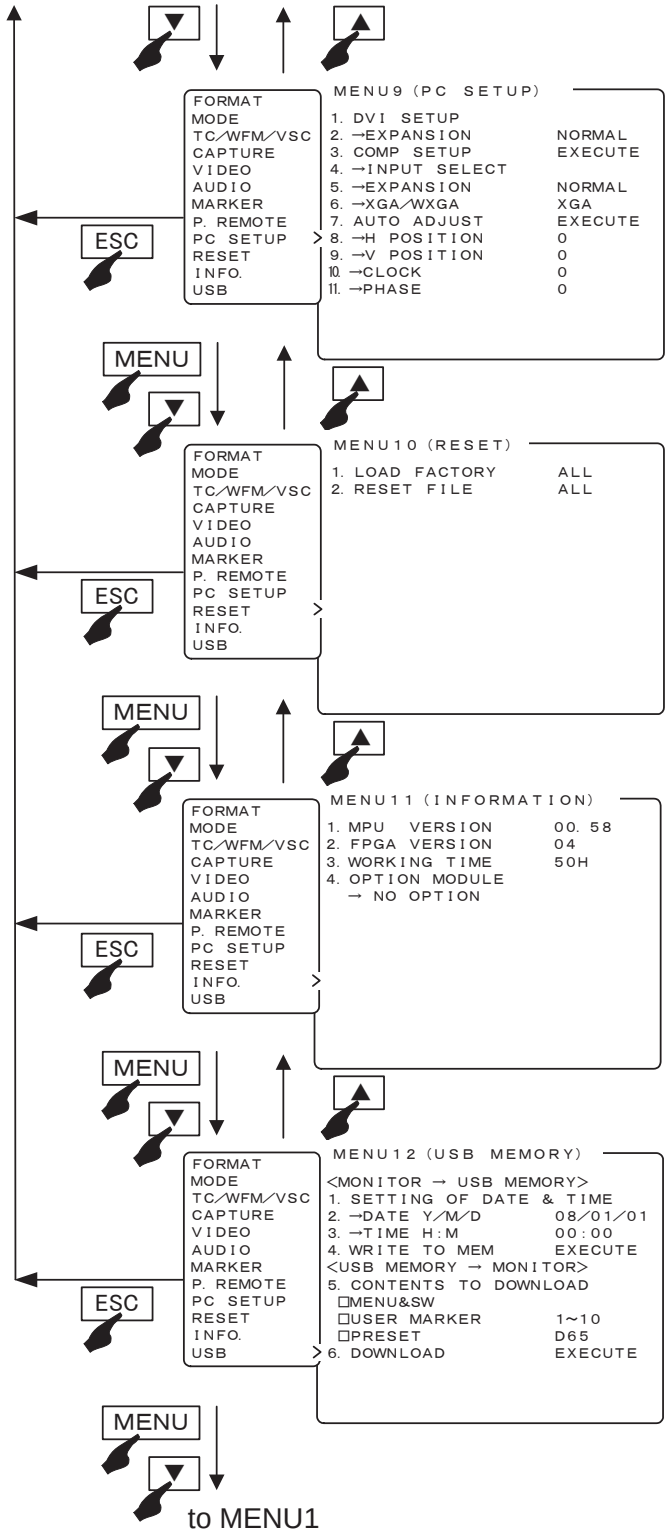


Set the image-related items.

Set the audio-related items.

Set the marker-related items.

Set the parallel remote-related items.



Set the PC input-related items.

Initialize the menu items/file setting.

Displays the MPU/FPGA version, operating hours and added optional modules.

Set the USB memory-related read/write items.

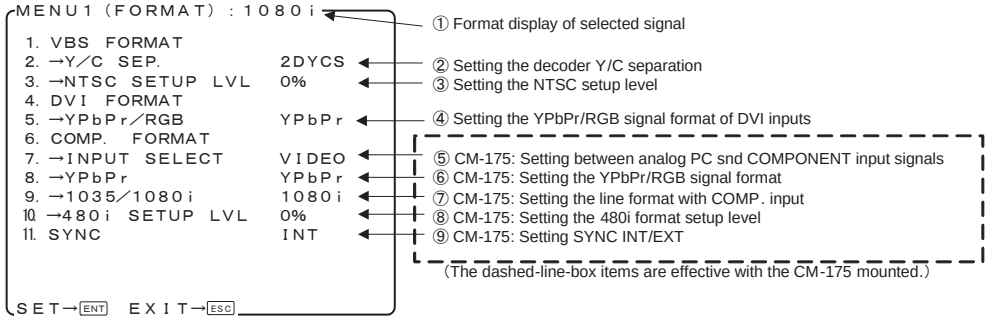
4-3. Description of MENU 1 Functions

＊Note the following description on the menu.

・The vertical frequency "/60" includes both 60 Hz and 59.94 Hz (60/1.001).

・The vertical frequency "/48" includes both 24 psF and 23.98 psF (24/1.001) in SF mode.

・The vertical frequency "/24" includes both 24 Hz and 23.98 Hz (24/1.001).



① Format display of selected signal

・Shows the format of the currently selected signal.

② Setting the decoder Y/C separation

・For the Y/C separation of VBS (composite) signals, set any of the following three types of formats.

・2DYCS ：two-dimensional comb filter

・3DYCS ：three-dimensional comb filter

・TRAP ：trap filter

・This function can be assigned with the F1 F2 switch on the front panel.

・Default setting is 2DYCS.

③ Setting the NTSC setup level

・Used to set the setup level at the time of NTSC signal input. When the black level of the signal has 7.5% setup, it is set to "7.5%".

・Default setting is 0%.

④ Setting the YPbPr/RGB signal format of DVI inputs

・Used to set the DVI input signal format to YPbPr or RGB.

・Default setting is YPbPr.

⑤ CM-175: Switching between analog PC and COMPONENT input signals

・PC : Analog PC input of the CM-175 is selected.

・VIDEO : COMPONENT input of the CM-175 is selected.

・This function can be assigned with the F1 F2 switchon the front panel.

・Default setting is VIDEO.

⑥ CM-175: Setting the YPbPr/RGB signal format

・Used to set the component input signal format to YPbPr or RGB when the optional CM-175 is mounted.

・Default setting is YPbPr.

※This item is selectable only when the CM-175 (option) is mounted.

⑦ CM-175: Setting the line format with COMP. inputs

・Used to set the component signal to "1035i" only in the 1035i/60 format input when the optional CM-175 is mounted.

・Default setting is 1080i/60.

※This item is selectable only when the CM-175 (option) is mounted.

⑧ CM-175: Setting the 480i format setup level

・Used to set the component signal setup level in the 480i/60 format input when the optional CM-175 is mounted. When the black level of the signal has 7.5% setup, it is set to "7.5%".

・Default setting is 0%.

※This item is selectable only when the CM-175 (option) is mounted.

⑨ CM-175: Setting SYNC INT/EXT

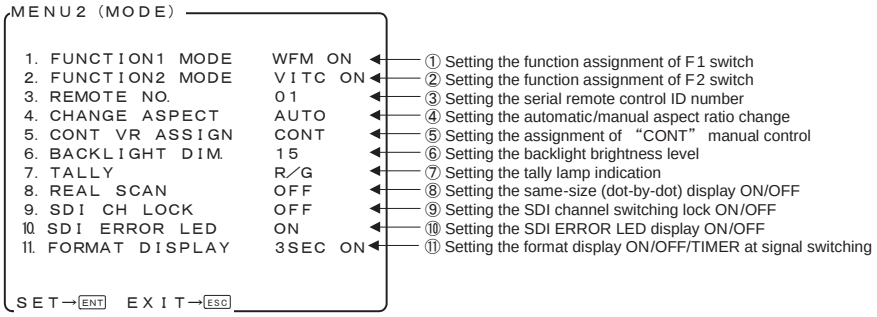
・With the YPbPr/RGB signal input, set the use of a sync signal that is separated from the Y or G on SYNC image signal or the use of a sync signal that is externally inputted.

・This function can be assigned with the F1 F2 switch on the front panel

・Default setting is INT.

※This item is selectable only when the CM-175 (option) is mounted.

4-4. Description of MENU 2 Functions



① Setting the function assignment of F1 switch

・Set any of the following operations performed by pressing the **F1** switch on the front panel.

< Assignment list of the **F1** and **F2** switches >
- ・FILE (Preset file change)
- ・MRK SEL (Marker type change)
- ・COMB (Decoder Y/C separation setting change)
- ・CHR UP (Chroma up ON/OFF change)
- ・IP MODE (IP conversion mode FIELD/FRAME change)
- ・DELAY (Delay H/V/H+V change)
- ・RS ON (Same-size display ON/OFF change)
- ・USR MRK (USER MARKER display ON/OFF change)
- ・VSC ON (VECTOR display ON/OFF change)
- ・VITC ON (SDI VITC display ON/OFF change)
- ・WFM ON (WFM display ON/OFF change)
- ・PC SEL (CM-175: PC/COMP. input change)
- ・SYNC (CM-175: SYNC INT/EXT change)
- ・AUD CH (Channel change of embedded audio)
- ・BL DIM (Backlight brightness level change)

※PC SEL and SYNC are selectable only when the CM-175 (option) is mounted.

※DELAY is not operative with PC, DVI(PC) and VBS signals. When set at DELAY, the same-size (dot by dot) display is fixed in order to prevent any scaling process.

・Default setting is WFM ON.

② Setting the function assignment of F2 switch

・The function assignment is selectable in the same way as that shown above ① by pressing the **F2** switch on the front panel.

・Default setting is VITC ON.

③ Setting the serial remote control ID number

・Used to set the ID number (01 to 99) of the monitor.

・The ID number is assigned to each monitor in order to perform remote operation with the serial remote controller (SRC-301A/Z).

・Default setting is 01.

④ Setting the automatic/manual aspect ratio change

・Used to select the automatic setting of a preset aspect ratio or the fixed setting for all reception channels, when selecting any reception channel.

・AUTO : displayed with the set aspect ratio for each channel

・MANUAL : displayed with the same aspect ratio for all channels

・Default setting is AUTO.

※When making an aspect change in the parallel remote mode, set to "MANUAL".

⑤Setting the assignment of "CONT" manual control

・Used to assign the function to the [CONT] control (switch popped up).

・CONT : contrast's manual level setting

・BL DIM. : backlight level setting .

・Default setting is CONT.

※With setting at "BL DIM", the **"6.BACKLIGHT DIM."** item automatically varies accordingly. Also the preset data is kept intact even when the switch is pressed.

⑥ Setting the backlight brightness level

・When the backlight brightness level is raised, the black level is also slightly raised. Therefore set the backlight brightness level according to the ambient condition.

・This function can be assigned with the **F1** **F2** switch on the front panel.

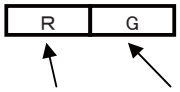
・Default setting is 15.

※The use at lower backlight brightness level extends the life span of backlight.

⑦ Setting the tally lamp indication

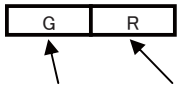
・Set any of the following display modes of the tally lamps located at the top of the front of the monitor.

・R/G : R is on the left side and G on the right side, when facing the screen.



[R-TALLY ON] [G-TALLY ON]

・G/R : G is on the left side and R on the right side, when facing the screen.

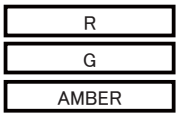


[G-TALLY ON] [R-TALLY ON]

・R+G : The entire tally is displayed.

The lamp is displayed in amber when both the R-TALLY and G-TALLY are set at ON.

Both R- and G-TALLY at ON.



←[R-TALLY ON]

←[G-TALLY ON]

←[Both R and G-TALLY at ON]

・Default setting is R/G.

⑧Setting the same-size (dot-by-dot) display ON/OFF

・Set to ON in order to reproduce the input signal in its original pixels without enlargement or reduction.

・This function can be assigned with the F1 F2 switch on the front panel.

・Default setting is OFF.

※Signals in 480i/575i format are not in square pixels. Therefore, the aspect ratio will be displayed differently from the original image.

⑨ Setting the SDI channel switching lock ON/OFF

・The lock is set to "ON" to prevent SDI signal channel switching.

・It utilizes the MONITOR OUT terminal and is effective in fixing the channel. It prevents accidental channel switching.

・Default setting is OFF.

※Before setting it to "ON", make sure the desired SDI channel is selected.

⑩ Setting the SDI ERROR LED display ON/OFF

・By turning this setting to “OFF,” the monitor can be set so that the front SDI ERROR LED will not be forcefully turned ON even when an SDI ERROR has occurred.

・Default setting is OFF.

⑪ Setting the format display ON/OFF before switching signals

・Used to set whether the channel and signal format are displayed or not.

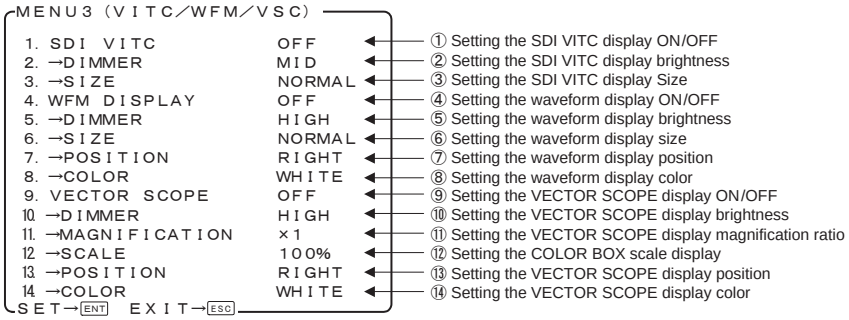
・3SEC ON : Three seconds indication

・CONT ON : Consecutive indication

・OFF : Indication off

・Default setting is 3SEC ON.

4-5. Description of MENU 3 Functions



① Setting the SDI VITC display ON/OFF

- Used to turn ON or OFF the VITC display multiplexed with HD-SDI signal.
- This function can be assigned with the F1 F2 switch on the front panel.

- Default setting is OFF.

② Setting of SDI VITC display brightness

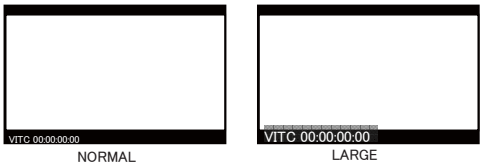
- Used to set the SDI VITC display brightness in three levels, LOW, MID and HIGH.

- Default setting is MID.

③ Setting of SDI VITC display size

- Used to select the SDI VITC display size, NORMAL or LARGE.

- Default setting is NORMAL.



④ Setting of waveform display ON/OFF

- Used to turn ON or OFF the waveform display of luminance signal.
- This function can be assigned with the F1 F2 switch on the front panel.
- Default setting is OFF.

⑤ Setting of waveform display brightness

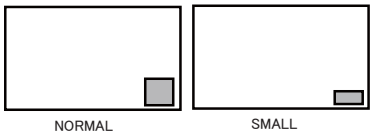
- Used to set the waveform display brightness in three levels, LOW, MID and HIGH.

- Default setting is HIGH.

⑥ Setting of waveform display size

- Used to set the luminance signal waveform display size, NORMAL or SMALL.
- The SMALL setting displays the waveform half as tall as in the NORMAL setting.

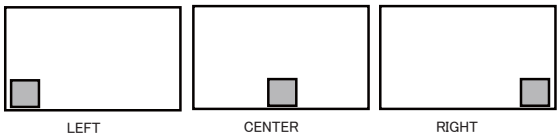
- Default setting is NORMAL.



⑦ Setting of waveform display position

- Used to set the waveform display position, RIGHT, CENTER or LEFT.

- Default setting is RIGHT.



⑧ Setting of waveform display color

- Used to set the waveform display color, GREEN or WHITE.

- Default setting is WHITE.

⑨ Setting the VECTOR SCOPE display ON/OFF

- Used to turn on or off the VECTOR SCOPE display.
- This function can be assigned with the F1 F2 switch on the front panel.
- Default setting is OFF.

⑩ Setting the VECTOR SCOPE display brightness

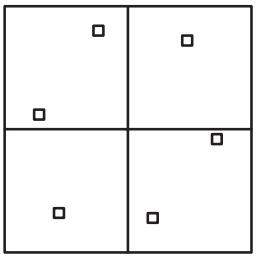
- Used to set the VECTOR SCOPE display brightness in 3 levels: LOW, MID and HIGH.
- Default setting is HIGH.

⑪ Setting the VECTOR SCOPE display magnification ratio

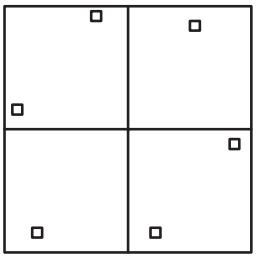
- Used to set the VECTOR SCOPE display magnification in 4 ratios: x1, x2, x4 and x8.
- Default setting is x1.

⑫ Setting the COLOR BOX scale display

- Used to set the VECTOR SCOPE's COLOR BOX according to the input color bar signal: 75% and 100%.
- Default setting is 100%.



75%SCALE

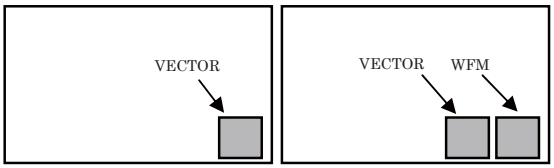


100%SCALE

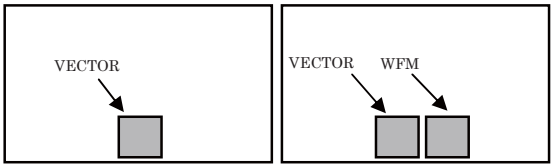
⑬ Setting the VECTOR SCOPE display position

- Used to set the waveform display to any of the RIGHT, CENTER and LEFT positions.
- When used commonly with WFM, the VECTOR display is located on the left of the WFM one.
- Default setting is RIGHT.

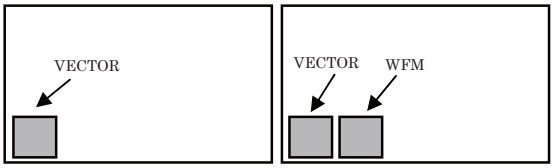
- RIGHT location



- CENTER location



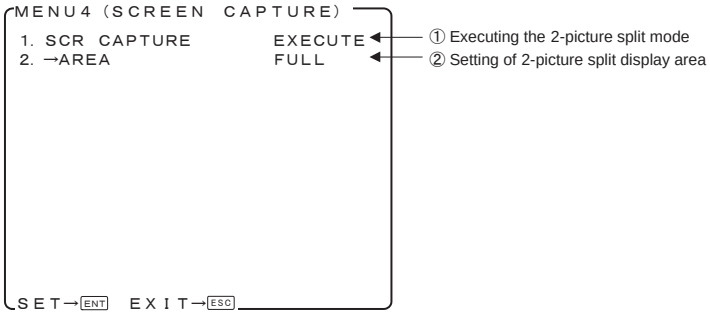
- LEFT location



⑭ Setting the VECTOR SCOPE display color

- Used to set the waveform display color to either of GREEN and WHITE.
- Default setting is WHITE.

4-6. Description of MENU 4 Functions

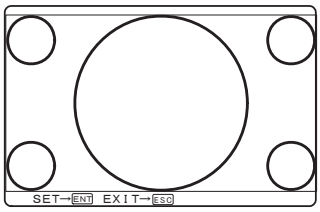


① Executing the 2-picture split mode

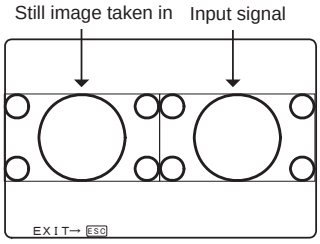
・Used to execute this mode to take in the still image of an input signal and compare it with other inputs.

1. With "EXECUTE" flashing in magenta, press the ENT switch.

2. The display changes as shown below. Press the ENT switch again to take in the image.



3. Switch the input and compare its image with the taken-in still image. To take in another image or to quit the 2-picture split mode, press the ESC switch.



* The 2-picture split mode is operative with sameformat signals. If different-format signals are input, the images cannot be properly displayed.
* With ASPECT set at [16:9], the SDTV signal is converted to the [4:3].

② Setting of 2-picture split display area

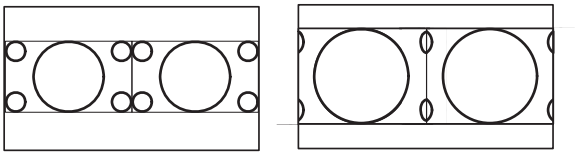
・Used to set the display area in the 2-picture split mode.

・FULL : Full image displayed

・4:3 : Image displayed in the central 4:3 area

・Default setting is FULL.

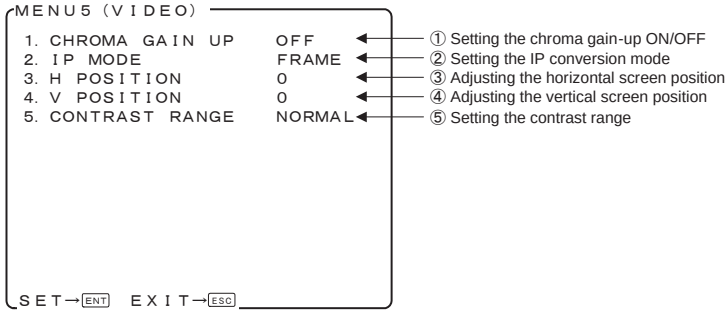
* This function is operative with HDTV-format input signals only.



HDTV < FULL >

HDTV < 4:3 >

4-7. Description of MENU 5 Functions



① Setting the chroma gain-up ON/OFF

- Set the gain-up ON/OFF for chroma signals.
- At the time of ON, the chroma gain increases by +6 dB.
- This function can be assigned with the F1 F2 switch on the front panel.

- Default setting is OFF.

② Setting the IP conversion mode

- The mode for I → P conversion is set in the 1035i/1080i/1080psF/480i/575i formats.
- FRAME : The information on the previous and subsequent fields is used to convert images to progressive ones. Thanks to this, diagonal interpolation of moving images is enabled for optimum setting.
- FIELD : The line interpolation in the field is used to convert images to progressive ones. In this way, the signal delay can be minimized.

- Default setting is FRAME.

* If the delay difference between video and audio are noticeable, change to "FIELD" setting. This setting will help operate regularly. Compared to FRAME interpolation, the FIELD setting may produce jaggies in moving images viewed diagonally.

③ Adjusting the horizontal screen position

- Adjust the horizontal screen position of VIDEO input (SDI, VBS, COMP).
- The settings are memorized for each channel, each format or the setting of SYNC INT/EXT.

- Default setting is 0.

④ Adjusting the vertical screen position

- Adjust the vertical screen position of VIDEO input (SDI, VBS, COMP).
- The settings are memorized for each channel, each format or the setting of SYNC INT/EXT.

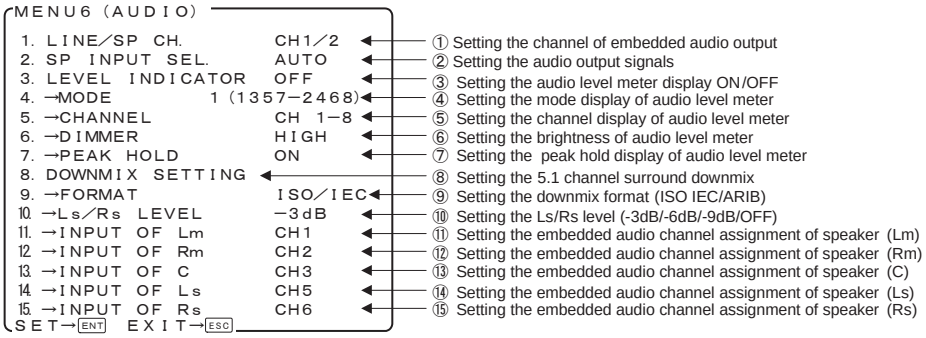
- Default setting is 0.

⑤ Setting the contrast range

- NORMAL : Set the video level within the range with no over-flow even if the contrast level is MAX.
- WIDE : The contrast level can be increased to two times.
  *The high level video has the over-flow.

- Default setting is NORMAL.

4-8. Description of MENU 6 Functions



①Setting the channel of embedded audio outputs

- Set any of the following pairs of channels of embedded audio to be outputted to the front speaker and the rear analog output connector (EA-240A/D3G-240A only).
  - CH1/2 : The output comes out of the paired CH1 and CH2 channels.
  - CH3/4 : The output comes out of the paired CH3 and CH4 channels.
  - CH5/6 : The output comes out of the paired CH5 and CH6 channels.
  - CH7/8 : The output comes out of the paired CH7 and CH8 channels.
  - DOWNMIX : The output comes out of downmix 5.1ch audio
- This function can be assigned with the F1 F2 switch on the front panel.

- Default setting is CH1/2.

② Setting the front speaker output signals

- Set the signals to be outputted to the speaker on the front of the monitor.
  - AUTO : embedded audios in the SDI input mode, and analog in other modes
  - EMBEDDED : fixed at embedded audios
  - ANALOG : fixed at analog

- Default setting is AUTO.

③ Setting the audio level meter display ON/OFF

- Used to turn on and off the audio level meter display.

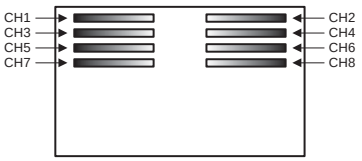
- Default setting is OFF.

④ Setting the mode display of audio level meter

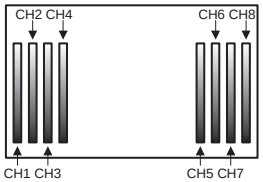
- Set the display mode of the audio level meter.
- The number in parentheses shows the order of display channel.
  - 1(1357-2468) : lateral display: odd channels on the left side of the screen, and even channels on the right side of the screen
  - 2(1234-5678) : longitudinal display: CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8 from left to right on the screen
  - 3(1357-8642) : longitudinal display: odd channels on the left side of the screen, and even channels on the right side of the screen

- Default setting is 1(1357-2468).

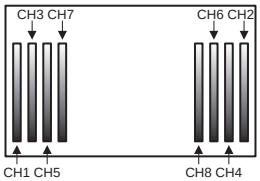
〈 1(1357-2468) 〉



〈 2(1234-5678) 〉



〈3(1357-8642)〉



⑤ Setting the channel display of audio level meter

- Set the display channel of the audio level meter.
  - CH 1−2 : CH1 to CH2 is displayed.
  - CH 1−4 : CH1 to CH4 is displayed.
  - CH 1−8 : CH1 to CH8 is displayed.

- Default setting is CH 1-8.

⑥ Setting the brightness of audio level meter

・Set the brightness of the audio level meter.
・The level meter image transmissive mode or nontransmissive mode can be set.
  ・LOW
  ・MID
  ・HIGH
  ・LOW (MIX) (Image transmissive mode)
  ・MID (MIX) (Image transmissive mode)
  ・HIGH (MIX) (Image transmissive mode)

・Default setting is HIGH.

⑦ Setting the peak hold display of audio level meter

・Used to turn on and off the peak hold display.

・Default setting is ON.

⑧ Downmix setting

・Set the 5.1 channel surround downmix.
・Mix the 5.1 channel surround audio signal assigned to 6 channnels of embedded audio into 2 channels and outputs from a speaker or a headphone.
・5.1ch surround super woofer(LFE) channel is not mixed.

⑨ Setting the downmix coefficients

・Select the mixing method to downmix 5.1ch audio in “ISO/IEC” and “ARIB”.

・Default setting is ISO/IEC

⑩ Setting the Ls/Rs level

・Set the coefficient of Ls/Rs to mix.
・Set among -3dB/-6dB/-9dB/OFF. (OFF ＝ －∞)

・Default setting is －3dB

⑪ Setting the embedded audio channel assignment of speaker (Lm)

・Set the channel of embedded audio, which the audio for 5.1ch surround Lm speaker (left side in front) should be assigned from.

・Default setting is CH1

⑫ Setting the embedded audio channel assignment of speaker (Rm)

・Set the channel of embedded audio, which the audio for 5.1ch surround Rm speaker (right side in front) should be assigned from.

・Default setting is CH2

⑬ Setting the embedded audio channel assignment of speaker (C)

・Set the channel of embedded audio, which the audio for 5.1ch surround C speaker (center) should be assigned from.

・Default setting is CH3

⑭ Setting the embedded audio channel assignment of speaker (Ls)

・Set the channel of embedded audio, which the audio for 5.1ch surround Ls speaker (left side in rear) should be assigned from.

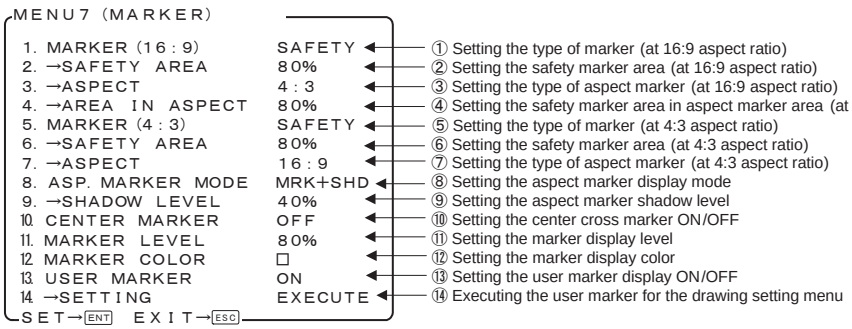
・Default setting is CH5

⑮ Setting the embedded audio channel assignment of speaker (Rs)

・Set the channel of embedded audio, which the audio for 5.1ch surround Rs speaker (right side in rear) should be assigned from.

・Default setting is CH6

4-9. Description of MENU 7 Functions

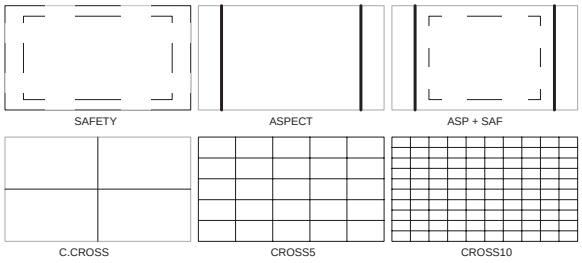


① Setting the type of marker (at 16:9 aspect ratio)

- Used to set various types of markers displayed at 16:9 aspect ratio.
  - SAFETY : Displaying the safety marker preset in Item ② .
  - ASPECT : Displaying the aspect marker preset in Item ③ .
  - ASP+SAF : Displaying the aspect marker preset in Item ③ and the safety marker in aspect marker area preset in Item ④.
  - C.CROSS : Cross marker.
  - CROSS5 : 5-split crosshatch pattern.
  - CROSS10 : 10-split crosshatch pattern.
- This function can be assigned with the F1 F2 switch on the front panel.

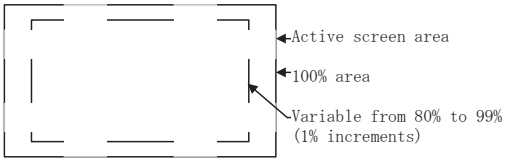
- The types of markers can also be set with the ◀ and ▶ switches on the front panel with nomenu displayed.

- Default setting is SAFETY.



② Setting the safety marker area (at 16:9 aspect ratio)

- Used to set the safety marker area in the 80%- 99% range with 1% increments at 16:9 aspect ratio.

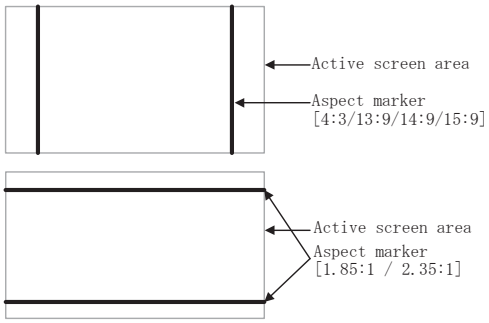


- Somewhere between 80% and 99% can also be set with the ▲ and ▼ switches on the front panel with no menu displayed.

- Default setting is 80% (safety area).

③ Setting the type of aspect marker (at 16:9 aspect ratio)

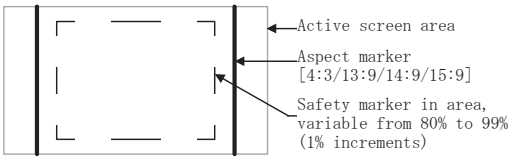
- Used to select the type of aspect marker from "4:3, 13:9, 14:9, 15:9, 1.85:1 and 2.35:1" at 16:9 aspect ratio.



- Default setting is 4:3 marker.

④ Setting the safety marker area in aspect marker area (at 16:9)

・Used to set the safety marker in the aspect marker (4:3, 13:9, 14:9 and 15:9) area in the 80%-99% range with 1% increments at 16:9 aspect ratio.



・Somewhere between 80% and 99% can also be set with the ▲ and ▼ switches on the front panel with no menu displayed.

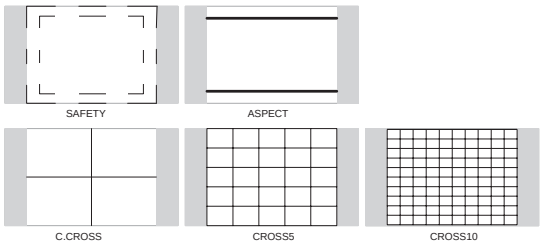
・Default setting is 80% (safety area).

⑤ Setting the type of marker (at 4:3 aspect ratio)

・Used to set various types of markers displayed at 4:3 aspect ratio.
- ・SAFETY : Displaying the safety marker preset in Item ⑥.
- ・ASPECT : Displaying the aspect marker preset in Item ⑦.
- ・C.CROSS : Cross marker.
- ・CROSS5 : 5-split crosshatch pattern.
- ・CROSS10 : 10-split crosshatch pattern.

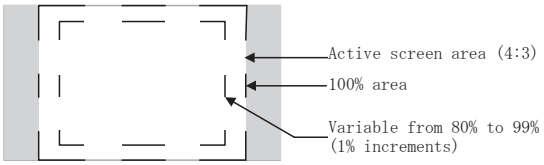
・The types of markers can also be set with the ◀ and ▶ switches on the front panel with no menu displayed.

・Default setting is SAFETY.



⑥ Setting the safety marker area (at 4:3 aspect ratio)

・Used to set the safety marker area in the 80%-99% range with 1% increments at 4:3 aspect ratio.

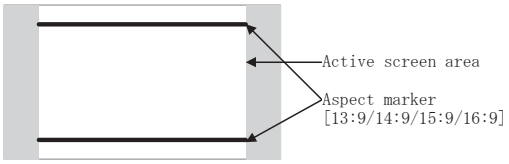


・Somewhere between 80% and 99% can also be set with the ▲ and ▼ switches on the front panel with no menu displayed.

・Default setting is 80% (safety area).

⑦ Setting the type of aspect marker (at 4:3 aspect ratio)

・Used to select the type of aspect marker from "13:9, 14:9, 15:9 and 16:9" at 4:3 aspect ratio.



・Default setting is 16:9 marker.

⑧ Setting the aspect marker display mode

・Used to set the aspect marker display mode.
- ・MARKER : Displaying the marker only.
- ・SHADOW : Displaying the shadow only.
- ・MRK+SHD : Displaying both the marker and shadow.

・Default setting is MARKER+SHADOW.

⑨ Setting the aspect marker shadow level

・Used to set the contrast level of the aspect marker shadow, when displayed.

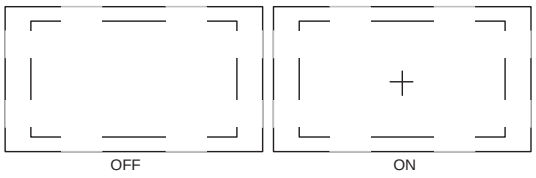
・Settings: 0%, 20%, 40% and 60%

・Default setting is 40%.

⑩ Setting the center cross marker ON/OFF

・Used to turn on and off the center cross marker.

・Default setting is OFF.



⑪ Setting the marker display level

・Used to set the marker display level.

・Settings: 20%, 40%, 60%, 80% and 100%

・Default setting is 80%.

⑫ Setting the marker display color

・Used to set the marker display color.
***** The user marker is displayed in the color preset on the user marker menu.

・Settings : White, yellow, cyan, green, magenta, red and blue

・Default setting is white.

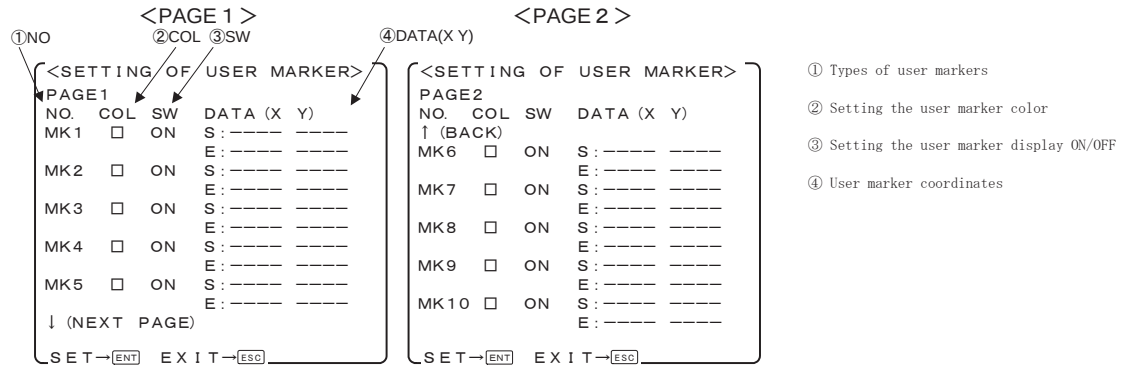
⑬ Setting the user marker display ON/OFF

・Used to turn on and off the user marker display.
・This function can be assigned with the F1 F2 switch on the front panel.
・Default setting is OFF.

⑭ Executing the user marker for the drawing setting menu

・Press ENT with EXECUTE, and the user marker setting menu shows up. Now various settings can be made on this menu.
For details, refer to Item **4-10.**

4-10. Description of MENU7 (USER MARKER) Functions and Making Settings

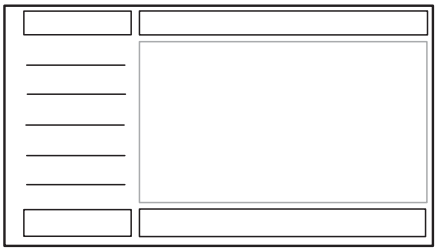


◆How to turn from PAGE1 to PAGE2
When the blinking cursor is at MK1, use the ▲ switch to go to PAGE2. With the blinking cursor at MK5, use the ▼ switch to go to PAGE2.

① Types of user markers

・The user markers are presettable in boxes or lines, chosen from 10 types from MK1 to MK10. Up to 10 different display positions of subtitles can therefore be individually preset, depending on programs. Use the ▼ and ▲ switches to select a desired item.

<10 different display examples>



② Setting the user marker color

・Using the "COL" item, select a desired display color from 6 colors. The 10 types of user markers can be color-coded to identify them if two or more user markers are used.
・Settings : White, yellow, cyan, green, red and blue
・Default setting is white.

③ Setting the user marker display ON/OFF

・Using the "SW" item, the display can be turned on and off.
・Default setting is ON.

④ User marker coordinates

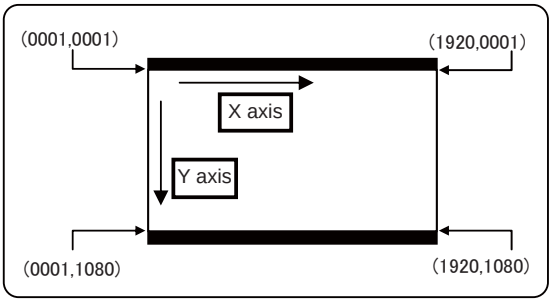
・In the "DATA (X Y)" column, the coordinates for S : START POINT and E : END POINT of the currently set user markers are displayed. without such settings, the "–" marker appears.
・Move the cursor to the X/Y data. Using the ENT switch, new user markers can be drawn or already registered user markers can be modified.
・The setting can be made in 1-pixel increments. The top left of the effective screen serves as the reference point (0001, 0001) of the coordinates. From this point, the coordinates can be adjusted in the pixel range of 1920 x 1080.
・Default setting is –(unregistered).

●Resetting the data

・With the "DATA (X Y)" settings blinking in magenta, hold down the ▶ switch (or the righthand button on the mouse) longer than 3 seconds, and the preset data may be deleted (–).

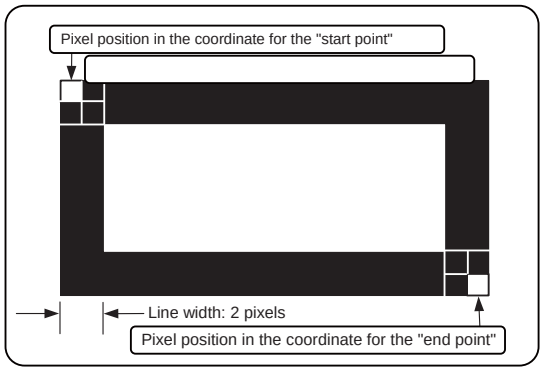
●Coordinate reference point

This panel has 1200 vertical pixels. In the broadcast format, 60 lines of non-picture area is created each at the top and the bottom. Markers cannot be displayed in this non-picture area. Therefore, the X-Y coordinate of the effective screen starts at the reference point (0001, 0001) as shown below.

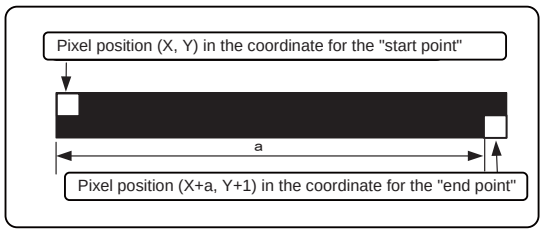


●Marker lines and coordinate values

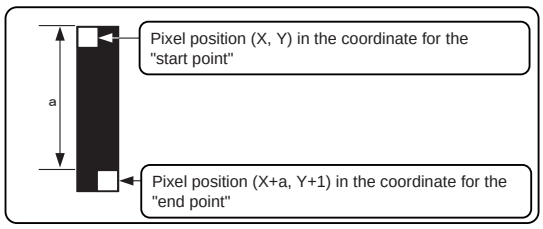
There are 2 line widths for the user markers. However, the coordinate for the start point and that for the end point are different by 1 pixel.



Accordingly, in drawing a horizontal line, the Ydirection address has a coordinate value with 1 pixel added, as shown below.

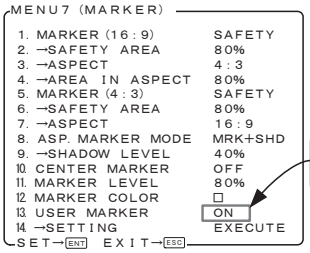


When a vertical line is drawn, the X-axis address has a coordinate value with 1 pixel added, as shown below.



How to preset new user markers

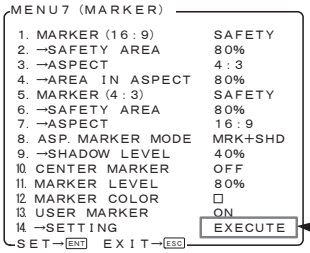
① Setting the marker display ON/OFF



Set USER MARKER to ON.

Move the cursor

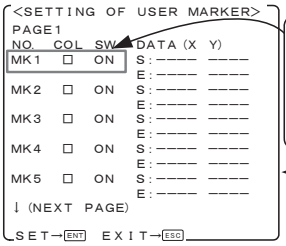
② Execute the drawing mode in item 14



Press ENT now.

ENT

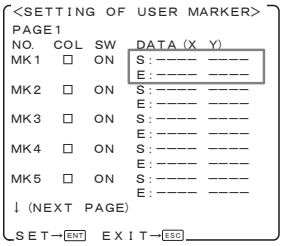
③ Setting the individual markers



Set the color and ON/OFF display for individual markers.

ENT

④ Going to the drawing menu



ENT

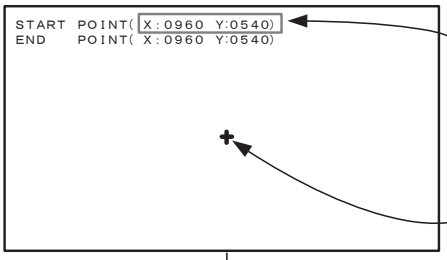
⑤

The menu screen in Step ③ reappears and the settings are displayed at the X-Y coordinate.

X axis

Y axis

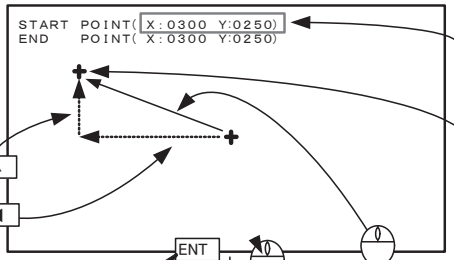
⑤ Setting the start point



With nothing registered, the initial X-Y coordinate is displayed, and the start-point X-Y coordinate starts blinking.

With nothing registered, the cursor is displayed at the default center.

⑥ Moving the cursor to the start point

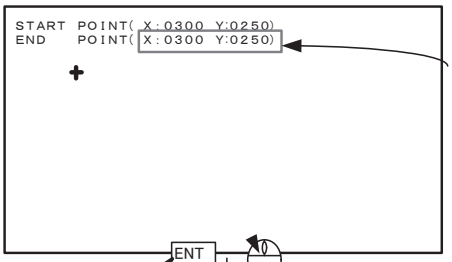


The shifted X-Y coordinate is displayed.

Move the cursor to the start point.

ENT

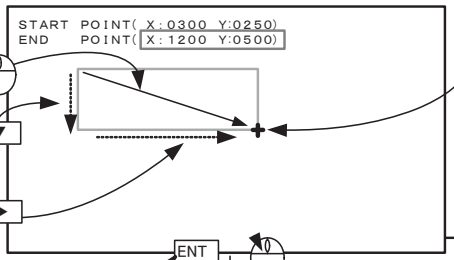
⑦ Saving the start point



The end-point X-Y coordinate stars blinking.

ENT

⑧ Moving the cursor to the end point



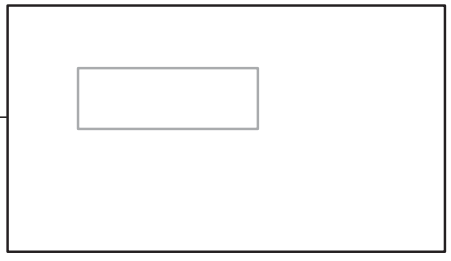
Move the cursor to the end point.

Take the procedure to set a new start point

ENT

ESC

⑨ Saving the end point



The cursor moves to the start point. Take the procedure in Step ⑤ on the next page.

How to modify the user markers

① Setting the marker display ON/OFF

```
MENU7 (MARKER)
 1. MARKER (16:9)          SAFETY
 2. →SAFETY AREA           80%
 3. →ASPECT                4:3
 4. →AREA IN ASPECT        80%
 5. MARKER (4:3)           SAFETY
 6. →SAFETY AREA           80%
 7. →ASPECT                16:9
 8. ASP. MARKER MODE       MRK+SHD
 9. →SHADOW LEVEL          40%
10. CENTER MARKER          OFF
11. MARKER LEVEL           80%
12. MARKER COLOR           □
13. USER MARKER            ON
14. →SETTING               EXECUTE
SET→ENT  EXIT→ESC
```

Set USER MARKER to ON.

Move the cursor

② Execute the drawing mode in item 14

```
MENU7 (MARKER)
 1. MARKER (16:9)          SAFETY
 2. →SAFETY AREA           80%
 3. →ASPECT                4:3
 4. →AREA IN ASPECT        80%
 5. MARKER (4:3)           SAFETY
 6. →SAFETY AREA           80%
 7. →ASPECT                16:9
 8. ASP. MARKER MODE       MRK+SHD
 9. →SHADOW LEVEL          40%
10. CENTER MARKER          OFF
11. MARKER LEVEL           80%
12. MARKER COLOR           □
13. USER MARKER            ON
14. →SETTING               EXECUTE
SET→ENT  EXIT→ESC
```

Press ENT now.

ENT

③ Setting the individual markers

```
<SETTING OF USER MARKER>
PAGE1
NO.  COL  SW   DATA (X  Y)
MK1  ■    ON   S:0300 0250
               E:1200 0500
MK2  □    ON   S:---- ----
               E:---- ----
MK3  □    ON   S:---- ----
               E:---- ----
MK4  □    ON   S:---- ----
               E:---- ----
MK5  □    ON   S:---- ----
               E:---- ----
↓(NEXT PAGE)
SET→ENT  EXIT→ESC
```

Set the color and ON/OFF display for individual markers.

ENT

④ Setting the modified size

```
<SETTING OF USER MARKER>
PAGE1
NO.  COL  SW   DATA (X  Y)
MK1  □    ON   S:0300 0250
               E:1200 0500
MK2  □    ON   S:---- ----
               E:---- ----
MK3  □    ON   S:---- ----
               E:---- ----
MK4  □    ON   S:---- ----
               E:---- ----
MK5  □    ON   S:---- ----
               E:---- ----
↓(NEXT PAGE)
SET→ENT  EXIT→ESC
```

(Hold down)

ENT

⑤

Hold down the ▶ switch (or the right-hand button on the mouse), and the data will be initialized (—).

The menu screen in Step ③ reappears and the new settings are displayed at the X-Y coordinate.

X axis

Y axis

⑤ Setting a new start point

```
START POINT( X:0300 Y:0250)
END   POINT( X:1200 Y:0500)
```

The start-point X-Y coordinate starts blinking.

The magenta-colored cursor appears at the start point.
*If the end point is positioned above or to the left of the start point, the cursor display position depends on the registered data.

Move the cursor to the start point.

⑥ Modifying the start point

```
START POINT( X:0250 Y:0200)
END   POINT( X:1200 Y:0500)
```

The shifted X-Y coordinate is displayed.

ENT

⑦ Modifying the end point

```
START POINT( X:0250 Y:0200)
END   POINT( X:1200 Y:0500)
```

The end-point X-Y coordinate starts blinking.

The magenta-colored cursor appears at the end point.

ENT

⑧ Shifting the end point

```
START POINT( X:0250 Y:0200)
END   POINT( X:1850 Y:0800)
```

Move the cursor to the end point.

Take the procedure to set a new start point.

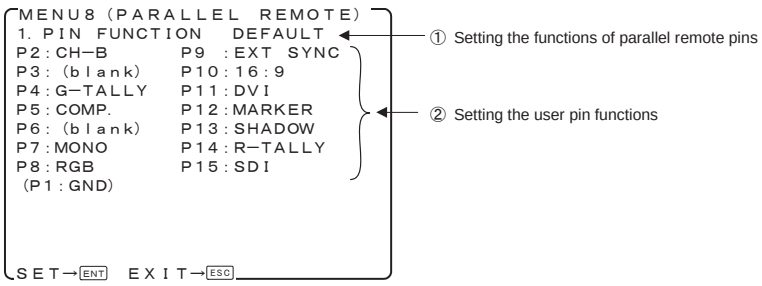
ENT

ESC

⑨ Saving the end point

The cursor moves to the start point.

4-11. Description of MENU 8 Functions



① Setting the functions of parallel remote pins

・Select the pre-assigned pin functions of parallel remote control or the individual user-set functions.

* By default, the pre-assigned pin functions are displayed beneath.

② Setting the IP conversion mode

・When "USER" is selected in ① , set the individual pin functions.The settable functions are as follows.

・CH-B : selection of CH-B
・SDI : selection of SDI input
・DVI : selection of DVI input
・COMP. : selection of component input
・MONO : selection of MONO
・RGB : selection of component RGB input
・16:9 : selection of SDTV aspect ratio 16:9
・EXT SYNC : selection of external sync input
・MARKER : marker ON
・SHADOW : shadow ON at MENU7-preset level
・SHADOW0 : shadow ON at shadow level 0% (Black)
・SHADOW20 : shadow ON at shadow level 20%
・SHADOW40 : shadow ON at shadow level 40%
・SHADOW60 : shadow ON at shadow level 60%
・R-TALLY : R tally ON
・G-TALLY : G tally ON
・3G-SDI : selection of 3G-SDI input
・ANALOG PC : selection of Analog PC input
・(blank) : unassigned

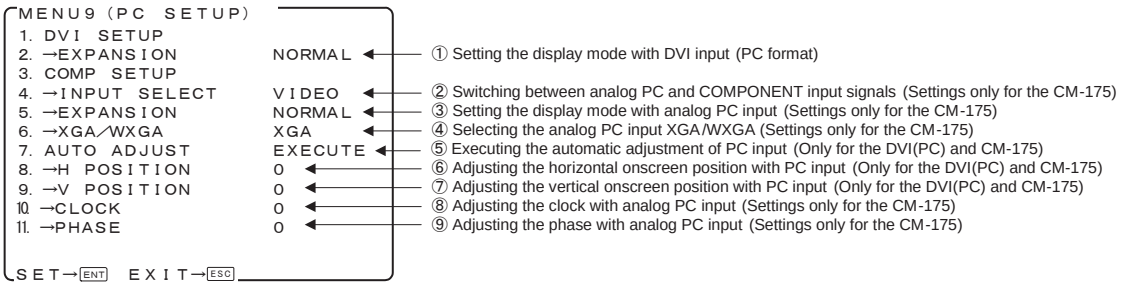
* "SHADOW0 ", "SHADOW20 ", "SHADOW40 " and "SHADOW60 " functions

・ Select two or more SHADOW settings at once, and "SHADOW0" (Black) is given priority.
・ When any of these functions is turned ON, the MENU8-adjusted shadow level is forced to go back to the level remotely preset.

* The functions of the following pins, which are fixed, cannot be changed.

・ Pin 1 : Make contact GND

4-12. Description of MENU 9 Functions



* The settings on MENU9 can be made only when the PC input is selected.

* When the computer screen resolution is set at WXGA, SXGA, UXGA and WUXGA, be sure to select the refresh frequency of 60 Hz.

① Setting the display mode with DVI input (PC format)

・Used to preset the image display size in receiving the PC-format DVI signals. This is effective when a DVI input mode has been selected and the related signal is detected.

・REAL : Images are displayed 1 : 1 with the resolution of input signal.

・NORMAL : The aspect ratio is maintained. Images are displayed enlarged up to maximum size displayable on this panel. Accordingly, the display size is not different between REAL and NORMAL with UXGA/WUXGA input signals.

・FULL : Images are fully displayed onscreen (1920 x 1200) for all input signals. Accordingly, the full display is made with different aspect ratios except for WUXGA (16 : 10) input signals.

・Default setting is NORMAL.

◆Display pixels with respect to PC input signals in each mode

PC input signal (pixels, aspect ratio)	Pixel size and aspect ratio		
	REAL	NORMAL	FULL
VGA (640×480、4:3)	640×480 (4:3)	1600×1200 (4:3)	1920×1200 (16:10)
SVGA (800×600、4:3)	800×600 (4:3)	1600×1200 (4:3)	1920×1200 (16:10)
XGA (1024×768、4:3)	1024×768 (4:3)	1600×1200 (4:3)	1920×1200 (16:10)
WXGA (1280×768、15:9)	1280×768 (15:9)	1920×1152 (15:9)	1920×1200 (16:10)
SXGA (1280×1024、5:4)	1280×1024 (5:4)	1500×1200 (5:4)	1920×1200 (16:10)
UXGA (1600×1200、4:3)	1600×1200 (4:3)	1600×1200 (4:3)	1920×1200 (16:10)
WUXGA (1920×1200、16:10)	1920×1200 (16:10)	1920×1200 (16:10)	1920×1200 (16:10)

② Switching between analog PC and COMPONENT input signals (Settings only for the CM-175)

・PC : Analog PC input of the CM-175 is selected.

・VIDEO : COMPONENT input of the CM-175 is selected.

・This function can be assigned with the F1 F2 switchon the front panel.

・Default setting is VIDEO.

③ Setting the display mode with analog PC input (Settings only for the CM-175)

・Used to preset the image display size. The table below Item ① is also applicable with the display pixel size with respect to the input signal mode.

・REAL : Images are displayed with the resolution of input signal.

・NORMAL : Images are displayed with the resolution enhanced to 1600 x 1200 in the case of VGA, SVGA, XGA and SXGA input signals.

・FULL : Images are fully displayed onscreen (1920 x 1200). With the WUXGA input signals, the display size remains FULL in any settings.

・Default setting is NORMAL.

④ Selecting the analog PC input XGA/WXGA (Settings only for the CM-175)

・When the analog PC input signal is WXGA, the format may fail to be identified, depending on the signal timing. In such case, select WXGA.

⑤ Executing the automatic adjustment of PC input (Only for the DVI(PC) and CM-175)

・Used to automatically adjust the phase, clock and horizontal/vertical onscreen position in Items ⑥ thru ⑨.

・With the "EXECUTE" characters blinking, press the ENT switch, and the automatic adjustment will be made.

* During the automatic adjustment, do not turn off the power and switch the input signal.

⑥ Adjusting the horizontal onscreen position with PC input (Only for the DVI(PC) and CM-175)

・Used to adjust the horizontal onscreen position.

⑦ Adjusting the vertical onscreen position with PC input (Only for the DVI(PC) and CM-175)

・Used to adjust the vertical onscreen position.

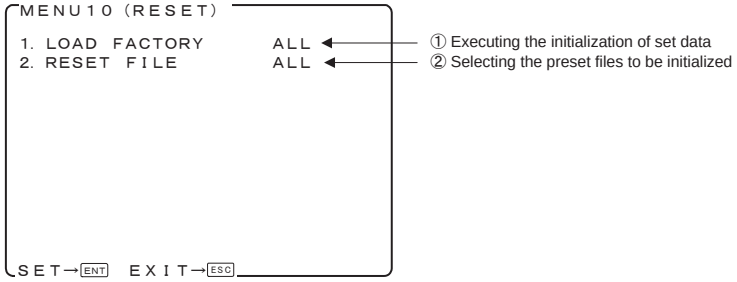
⑧ Adjusting the clock with analog PC input (Settings only for the CM-175)

・Used to adjust if noticeable vertical stripes appear onscreen.

⑨ Adjusting the phase with analog PC input (Settings only for the CM-175)

・Used to adjust if horizontal stripes appear or the characters look blurry onscreen.

4-13. Description of MENU 10 Functions



① Executing the initialization of set data

・Perform this setting to restore the default settings.

・ALL : Factory settings are restored for all PRESET data, all MENUs and switches.

・PRESET : Factory settings are restored for all PRESET data.

・MENU&SW : Factory settings are restored for all MENUs and switches.

・To initialize, select an item to be initialized with the ▲ and ▼ switches and press the ENT switch. The confirmation message appears. Press the ENT switch again. To cancel the initialization, just press the ESC switch.

* The initialization of data cannot be executed if "DATA LOCK" or "ALL LOCK" is set in "5-2. ⑥ Setting of data protection password". To initialize the data,unlock.

② Selecting the preset files to be initialized

・When "PRESET " is selected in ① , select a file for restoring the set data to the factory-set one.

・ALL : All the preset files are initialized.

・FILEx (x:1 to 8) : FILEx only is initialized.

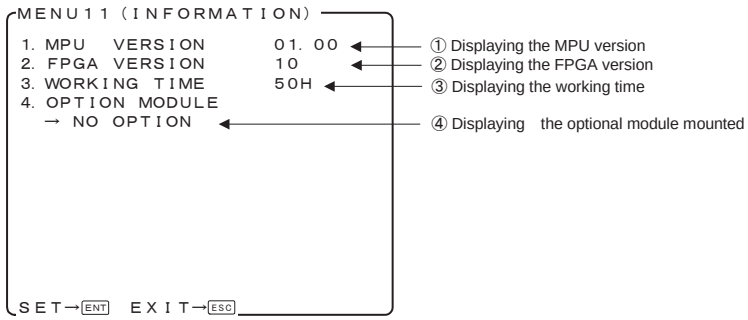
・FILE1-8 : FILE1 to FILE8 only are initialized.

・D65 : REF D65 only is initialized.

・D93 : REF D93 only is initialized.

・D65/D93 : REF D65 and D93 only are initialized.

4-14. Description of MENU 11 Functions



① Displaying the MPU version

・Displays the current software version.

② Displaying the FPGA version

・Displays the current software version.

③ Displaying the working time

・The total working time of the monitor is displayed in hours.

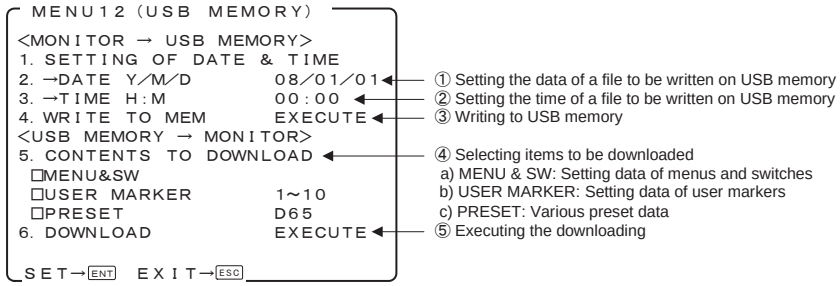
④ Displaying the optional modules mounted

・Displays the optional module currently mounted on the monitor.

・The following message appears when no corresponding optional module is installed.
"→ NO OPTION"

・The following appear when an optional module is installed.
→CM-175 : When equipped with the CM-175.
→EA-240A : When equipped with the EA-240A.
→EA-240D : When equipped with the EA-240D.
→D3G-240A : When equipped with the D3G-240A.
→D3G-240D : When equipped with the D3G-240D.

4-15. Description of MENU 12 Functions



Writing from monitor to USB memory

① Setting the date of a file to be written on USB memory

・Used to set the editing date of a file to be written on a USB memory. Enter a date when you are going to write on the USB memory. When reviewing files on a computer, the date entered here will be displayed as the date of the file.
・Enter "Y (year)/M (month)/D (day)" in this order.
・If no date is entered, the file will be edited as of the date appearing currently on the menu.

② Setting the time of a file to be written on USB memory

・Used to set the editing time of a file in a way similar to Item ① .
・Enter "H (hour) : M (minute)" in this order. If no time is entered, the file will be edited as of the time appearing currently on the menu.

③ Writing to USB memory

・To write all the setting data from the monitor to a USB memory, select "EXECUTE" and press the ENT switch. For writing details, refer to "How to write from monitor to USB memory" (page 36).

・**File format for writing to USB memory**

Files to be written from the monitor to a USB memory are created in the following 3 text files in the Ikegami Monitor folder that is automatically prepared.

Ikegami_Monitor : Automatically prepared folders

menu_sw_hlm2450b_001.txt

- ・File to save the menu (USER MARKER and PRESET MENU not included) status and the switch settings.
- ・Data capacity: Approx. 2 Kbyte
- ・This file is specific for the HLM-2450WB.
  The PRESET data of the HLM-1750WR/2450W/3250W and other models cannot be downloaded.

user_marker_001.txt

- ・File to save various setting data of the user markers MK1 thru MK10 that are preset in MENU8.
- ・Data capacity: Approx. 2 Kbyte
- ・Files common for the HLM-1750WR,HLM-2450W/WA and HLM-3250W.

preset_hlm2450b_001.txt

- ・File to save the PRESET menu settings as well as all the D65, D93 and FILE1 thru -8 data.
  The password lock and the password itself are not saved, however.
- ・Data capacity: Approx. 3 Kbyte
- ・This file is specific for the HLM-2450WB.
  The PRESET data of the HLM-1750WR/2450W/WA/3250W and other models cannot be downloaded.

◆Precautions on writing

- ・With a USB memory connected, do not turn on and off the monitor power. Do not draw out the inserted USB memory while the writing is going on. Otherwise the USB memory may get damaged. Draw out the USB memory in the steps according to "How to write from monitor to USB memory" (page 36) discussed later.
- ・Do not change the name of an automatically prepared folder or a file. Otherwise downloading to the monitor cannot be carried out. Do not modify the data of a file either. In such case, the data order may change and the data may fail to be written.
- ・If there is a file already in the specified folder, the data of a new file will be overwritten on the existing file.
- ・High-security USB memories could not be possibly recognized.

Downloading from USB memory to monitor

④ Selecting items to be downloaded

・Select the items of data to be downloaded from the USB memory to the monitor. Tick the check box.

・Items

a) □MENU&SW

- ・Tick this check box to download the status of all the menus (USER MARKER MENU and PRESET MENU not included) and the switch settings.
- ・The "¥Ikegami Monitor¥menu_sw_hlm2450b_001.txt" file can be read.
- ・This file is specific for the HLM-2450WB. The data of the HLM-1750WR,2450W/WA, HLM-3250W and other models cannot be downloaded..

b) □USER MARKER

- ・Tick this check box to download various settings (color, ON/OFF, X-Y coordinate) of the user markers MK1 thru MK10 that are preset in MENU7.
- ・The "¥Ikegami Monitor¥user marker 001.txt" file can be downloaded.
- ・By changing the "MK1 thru MK10" settings, the user markers can be downloaded in groups or individually.
- ・Files are common for the HLM-1750WR, HLM-2450W/WA and HLM-3250W. The data saved from the HLM-1750WR/ 2450W/WA/WB/ 3250W may be downloaded to the HLM-2450WB, and vice versa.

c) □PRESET

・Tick this check box to download the items preset in PRESET MENU and the D65, D93 and FILE1 thru -8 data.

・The "¥Ikegami_Monitor¥ preset_hlm2450b_001.txt" file can be read.

・When the data stays locked with the password, the check box cannot be ticked. Enter the password to unlock first and then do the downloading.

・The file names of FILE data are different from model to model. The PRESET data of different models, such as the HLM-1750WR/2450W/WA/3250W, cannot be downloaded.

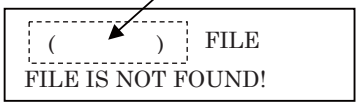
・The color temperature data in FILE are different from unit to unit. Even by downloading the data of another monitor between two or more monitors, the same color temperature is not achieved. Accordingly, it is advisable to utilize the downloaded PRESET data for its unit as backup.

⑤ Executing the downloading

・In downloading the data of the items check-marked in Item ④ from the USB memory to the monitor, select "EXECUTE" first and then press the ENT switch. For writing details, refer to "How to download from USB memory to monitor" discussed later.

・If the file check-marked in Item ④ does not exist in the specific folder of the USB memory, the following message appears.

Missing file name displayed here.

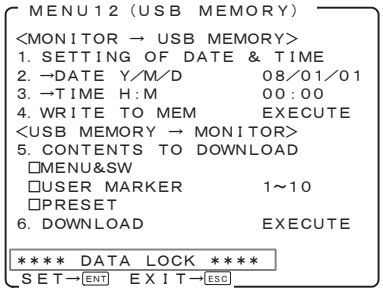


◆Precautions on downloading

・With a USB memory connected, do not turn on and off the monitor power. Do not draw out the inserted USB memory while the downloading is going on. Otherwise the USB memory may get damaged. Draw out the USB memory in the steps according to "How to download from USB memory to monitor" discussed later.

・Do not change the name of an automatically prepared folder or a file. Otherwise downloading to the monitor cannot be carried out. Do not modify the data of a file either. In such case, the data order may change and the data may fail to be written.

・If the password lock is on with the data in the monitor, "DATA LOCK" appears, as shown below, in the menu. Undo the password lock and do the downloading.

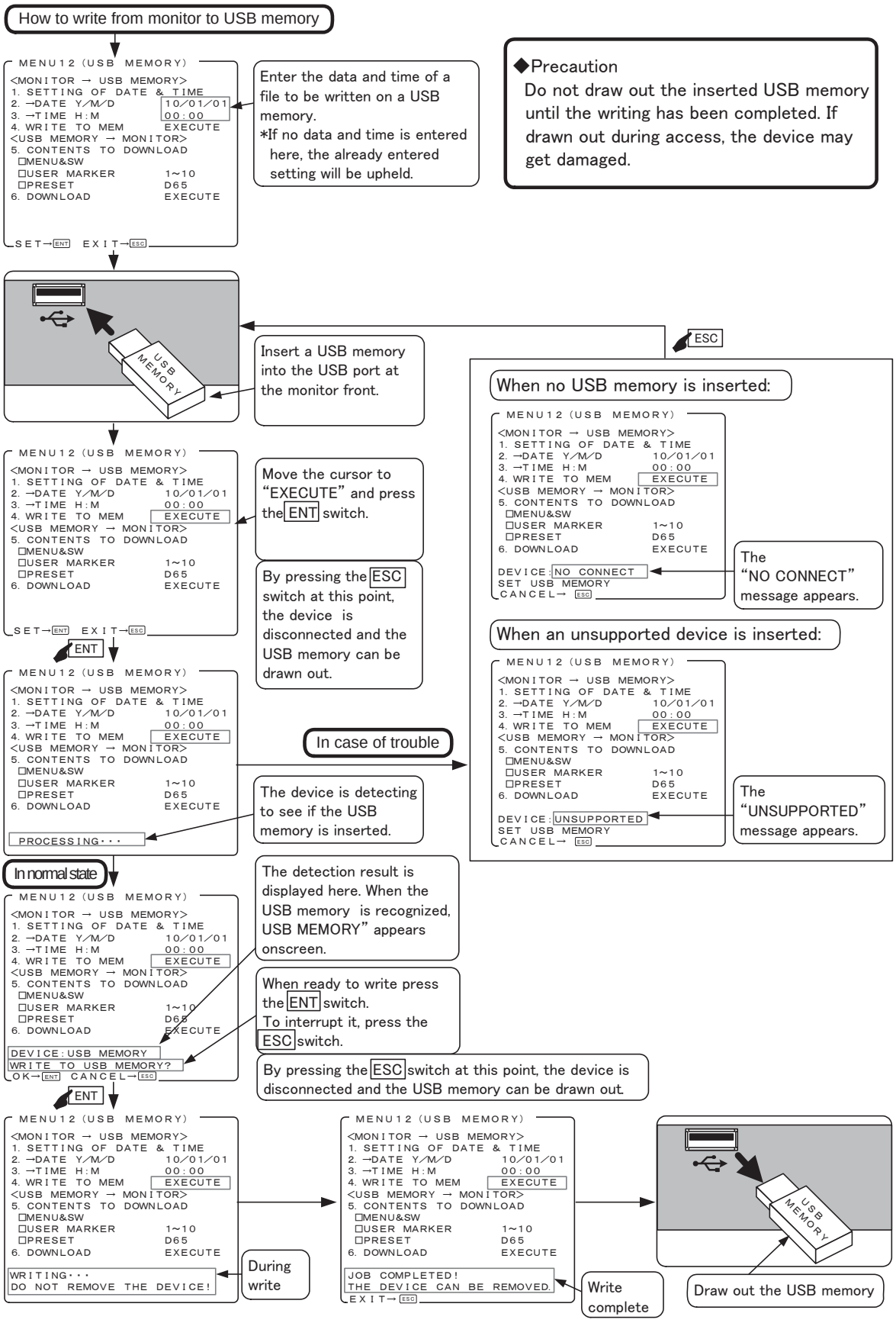


・High-security USB memories could not be possibly recognized.

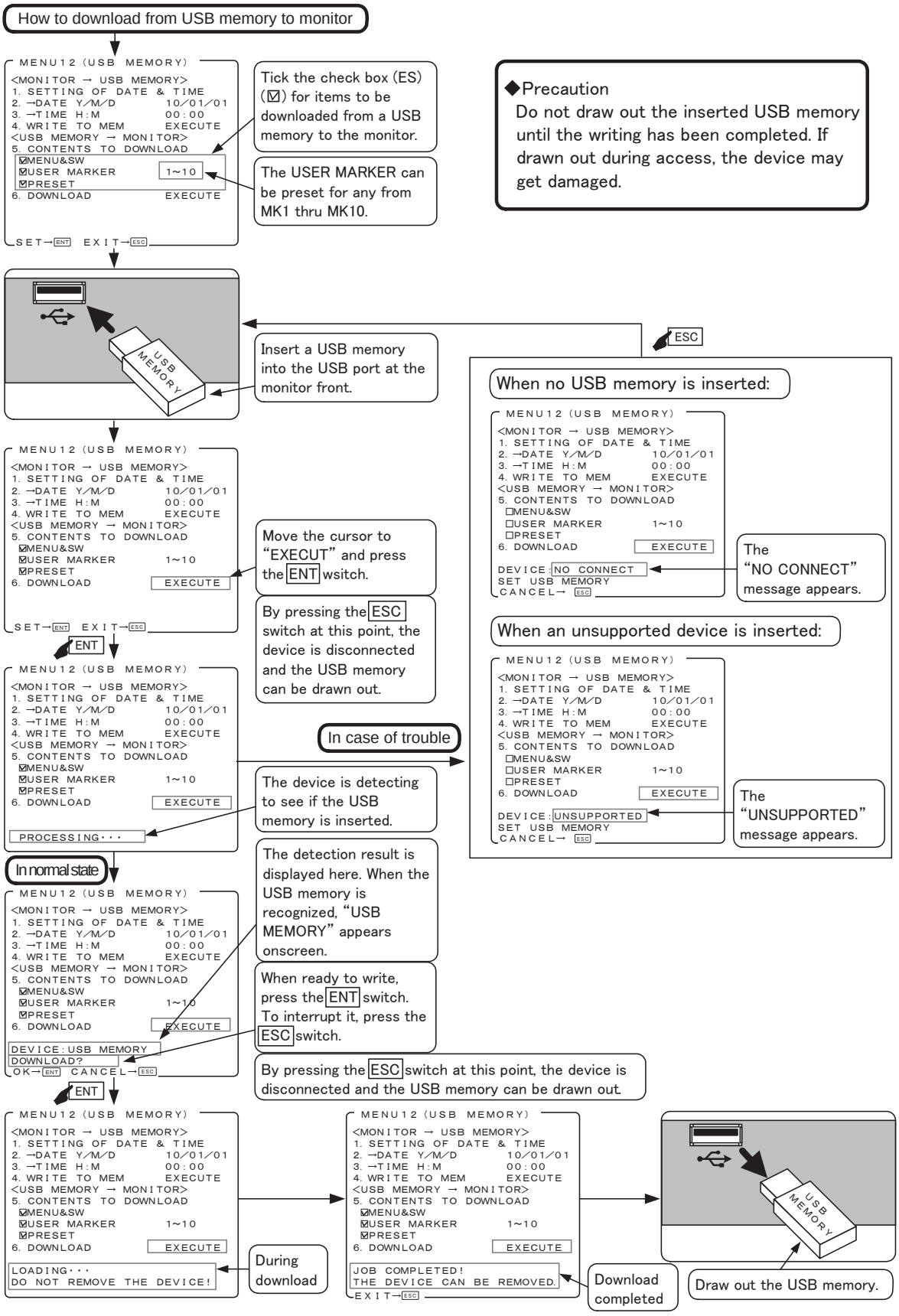
◆Error message on writing and downloading

ILLEGAL DATA : Checksum error was detected.
FILE IS NOT FOUND : File is not found.
ERROR01 : File system error is detected
ERROR02 : Devices other than USB memories is detected.
High-security USB memories is detected.
ERROR03～17 : Various error in the access is detected.

How to write from monitor to USB memory



How to download from USB memory to monitor

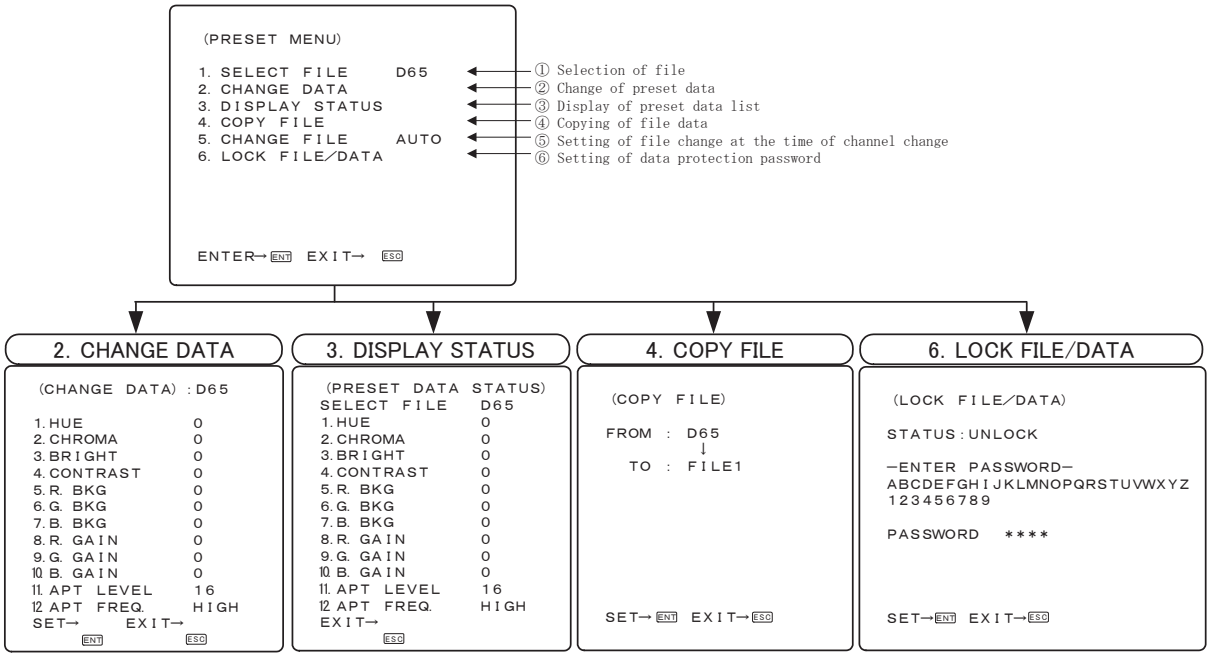


5. Preset Menu Function

5-1. List of preset menu

・To execute the preset menu, press **PRESET**.

* Turn off the menu screen.



5-2. Description of preset menu

① Selection of files

・Select a file from among D65, D93 and FILE1 to FILE8.

・D65 : 6500K

・D93 : 9300K

・FILE1-8 : User files

・The following data is memorized on these 10 files.

・HUE : Hue data (only for NTSC signals)

・CHROMA : CHROMA data

・BRIGHT : BRIGHTNESS data

・CONTRAST : CONTRAST data

・R.GAIN : R.GAIN data

・G.GAIN : G.GAIN data

・B.GAIN : B.GAIN data

・R.BKG : R.BACKGROUND data

・G.BKG : G.BACKGROUND data

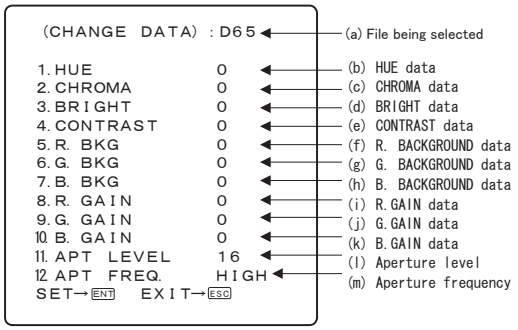
・B.BKG : B.BACKGROUND data

・APT LEVEL : Aperture level

・APT FREQ. : Aperture frequency

・The D65 and D93 have been factory-set for the color temperatures of 6500K and 9300K, respectively. The FILE1 thru -8 data have been factory-set to be the same as for the D65.

② Change of preset data



・Change the data of a file selected in **"(a) Selection of files"** on the preceding page.

・How to change data

Select "CHANGE DATA" and press the **ENT** switch. The following "CHANGE DATA" menu appears.

・Adjustable

・HUE

Used to set the hue (only for NTSC signals).

・CHROMA

Used to set the color density.

・BRIGHT (BRIGHTNESS)

Used to set the black level.

・CONTRAST (CONTRAST)

Used to set the white level.

・R.BKG (R.BACKGROUND)

Used to set the black balance (red component) in the dark zone.

・G.BKG (G.BACKGROUND)

Used to set the black balance (green component)in the dark zone.

・B.BKG (B.BACKGROUND)

Used to set the black balance (blue component)in the dark zone.

・R.GAIN

Used to set the white balance (red component) in the bright zone.

・G.GAIN

Used to set the white balance (green component)in the bright zone.

・B.GAIN

Used to set the white balance (blue component)in the bright zone.

・APT LEVEL

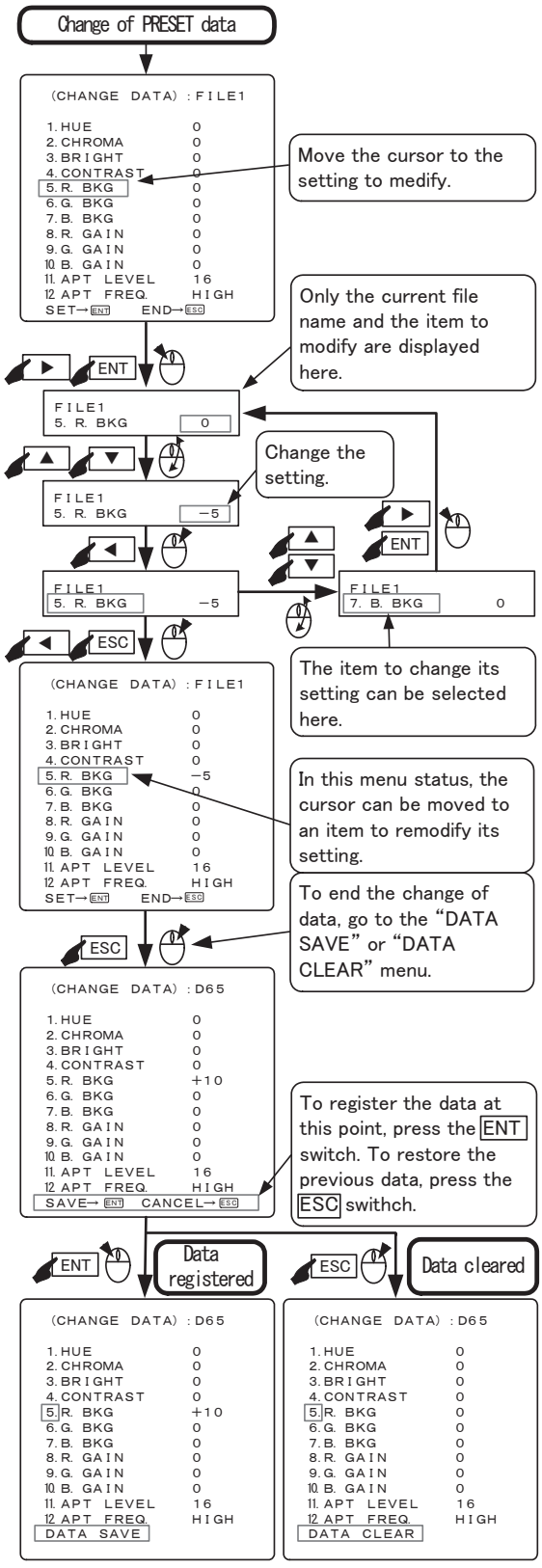
Used to set the aperture level in the "0-63" range.

・ Default setting is 16.

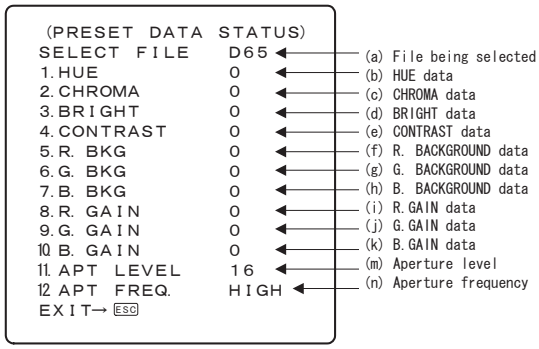
・APT FREQ.

Used to set the aperture frequency. LOW (low frequency), MID1, MID2, HIGH (high frequency)

・Default setting is HIGH.



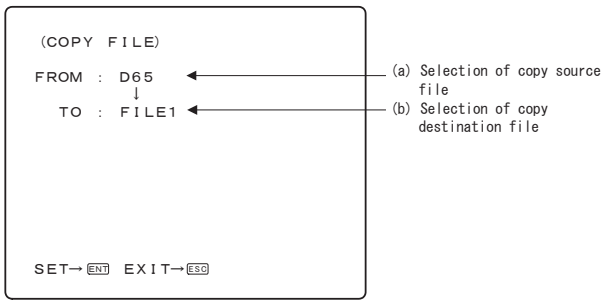
③ Display of preset data list



・Display a list of the settings of file data.

・To change files, use the ◀ and ▶ switches at the SELECT FILE setting.

④ Copying of file data



(a) Select the copy source file (D65, D93, FILEx [x: 1 to 8]) using the ▲/▼ switch and press the **ENT** switch.

(b) Select the copy destination file (FILEx [x: 1 to 8], FILE1 - FILE8) using the ▲/▼ switch.

* When FILE1 - FILE8 are selected, data is copied to FILE1 through FILE8.

(c)When the **ENT** switch is pressed, the copy confirmation message appears. To copy, press the **ENT** switch again. If not, press the **ESC** switch.

⑤ Setting of file change operation at the time of channel change

・Set the association of channel change with file change.

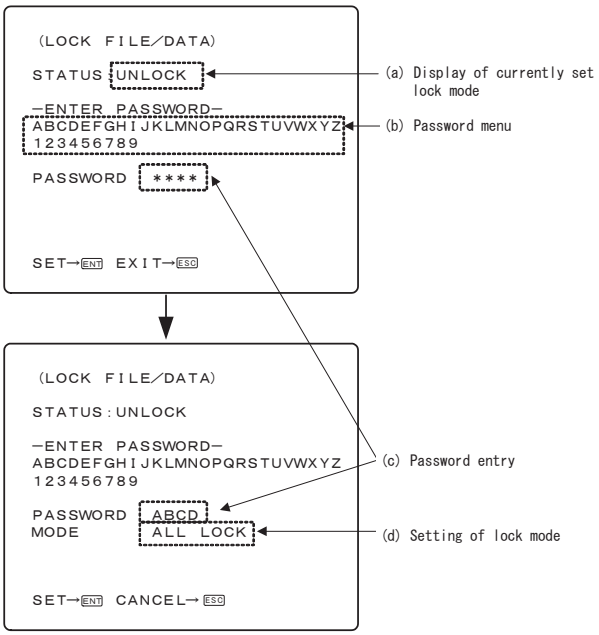
・AUTO : Files are memorized for each channel: When a channel is changed to another, an automatically stored fillies picked up.

・MANUAL : Just one file preset for all channels is fixed.

・Default setting is AUTO.

⑥ Setting of data protection password

・A password is set to prevent modifications of the preset data and the initialization.



(a) Display of currently set lock mode

・The currently set lock mode is displayed.

・UNLOCK : The lock is released and all data can be changed.

・DATA LOCK : Preset data change is locked, although file change impossible.

・ALL LOCK : Preset data change and file change are impossible.

(b) Password menu

・Select characters from this list using the ▲, ▼, ◀ and ▶ switches and press the **ENT** switch to set the password.

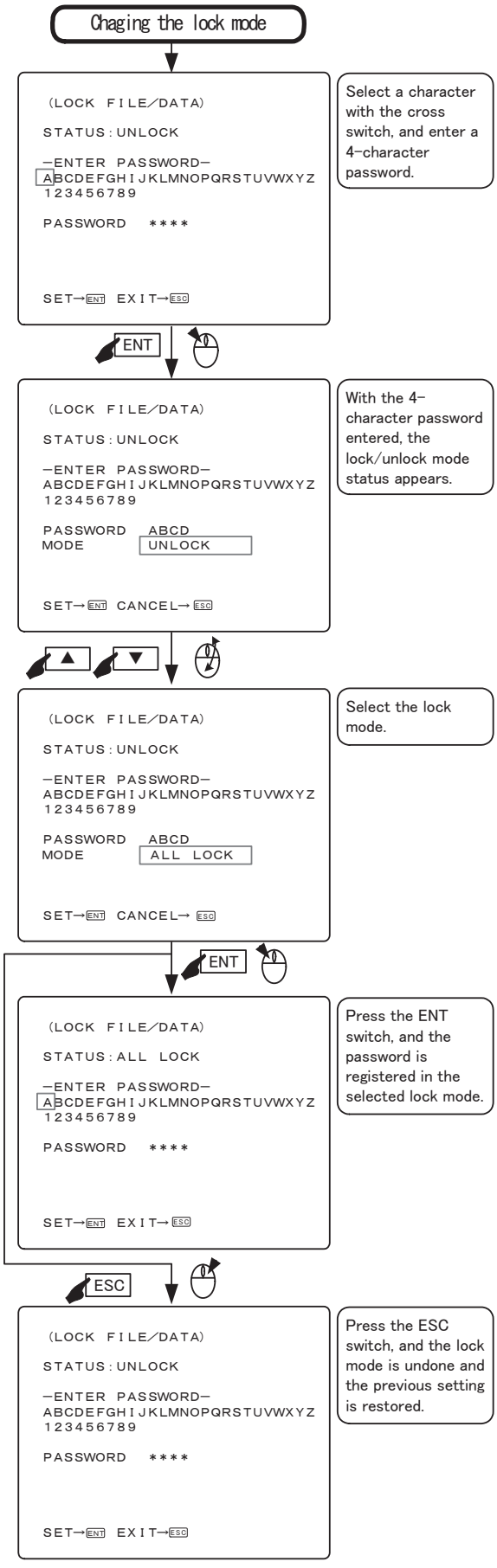
(c) Password entry

・When setting the lock mode to ALL LOCK or DATA LOCK or when releasing the lock mode(UNLOCK), select characters from the menu in ② and enter a four-digit password here.

* If you forget the registered password, contact Ikegami's service office. They have a password for releasing the lock.

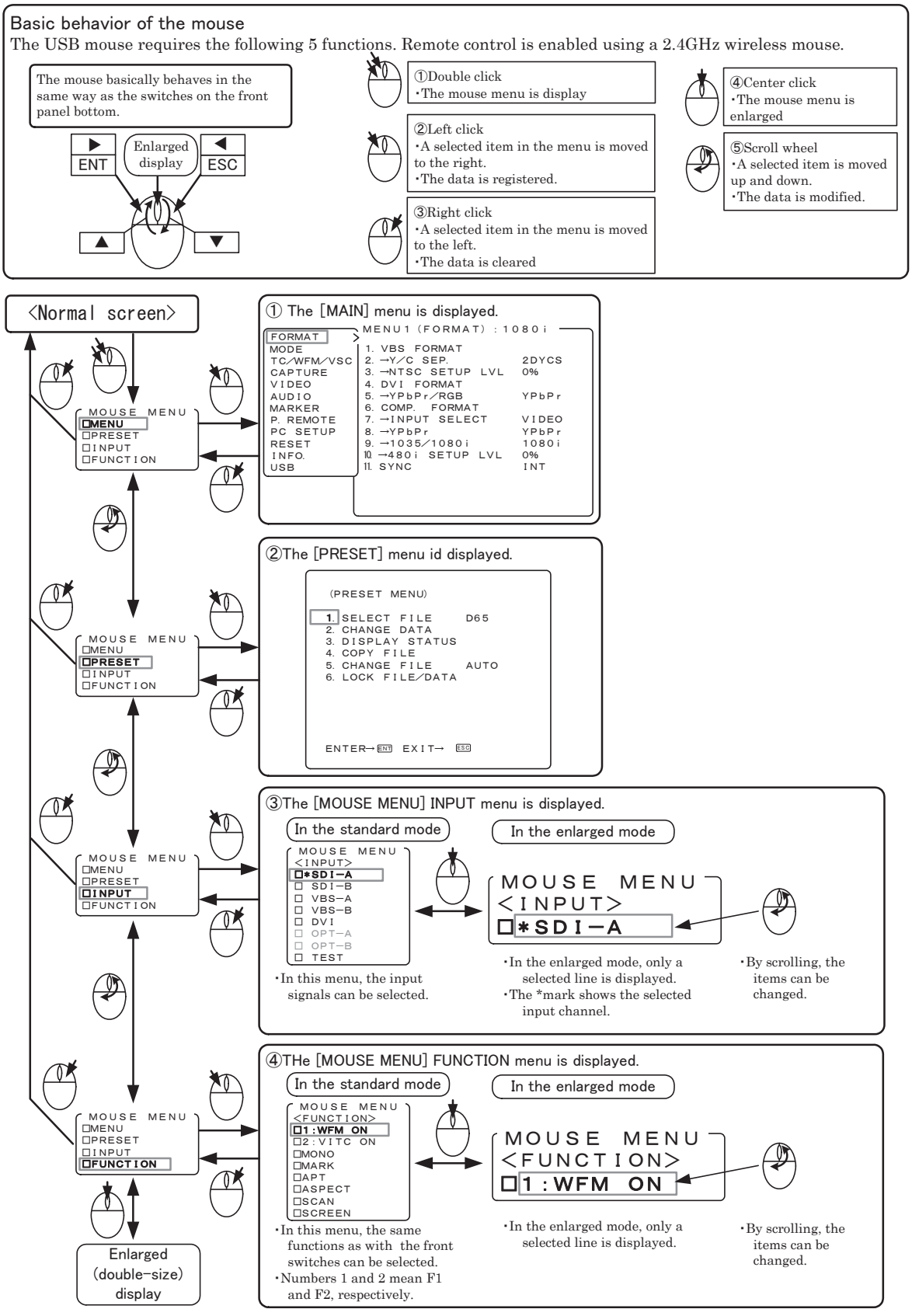
(d) Setting of LOCK mode

・When the **ENT** switch is pressed after the password has been entered, the LOCK mode blinks. Execute the setting by pressing the **ENT** key. To return to the previous state, press the **ESC** switch.


Chaging the lock mode
(LOCK FILE/DATA)
STATUS:UNLOCK
-ENTER PASSWORD-
ABCDEFGHIJKLMNOPQRSTUVWXYZ
123456789
PASSWORD ****
SET→ENT EXIT→ESC
Select a character with the cross switch, and enter a 4-character password.
ENT
(LOCK FILE/DATA)
STATUS:UNLOCK
-ENTER PASSWORD-
ABCDEFGHIJKLMNOPQRSTUVWXYZ
123456789
PASSWORD ABCD
MODE UNLOCK
SET→ENT CANCEL→ESC
With the 4-character password entered, the lock/unlock mode status appears.
(LOCK FILE/DATA)
STATUS:UNLOCK
-ENTER PASSWORD-
ABCDEFGHIJKLMNOPQRSTUVWXYZ
123456789
PASSWORD ABCD
MODE ALL LOCK
SET→ENT CANCEL→ESC
Select the lock mode.
ENT
(LOCK FILE/DATA)
STATUS:ALL LOCK
-ENTER PASSWORD-
ABCDEFGHIJKLMNOPQRSTUVWXYZ
123456789
PASSWORD ****
SET→ENT EXIT→ESC
Press the ENT switch, and the password is registered in the selected lock mode.
ESC
(LOCK FILE/DATA)
STATUS:UNLOCK
-ENTER PASSWORD-
ABCDEFGHIJKLMNOPQRSTUVWXYZ
123456789
PASSWORD ****
SET→ENT EXIT→ESC
Press the ESC switch, and the lock mode is undone and the previous setting is restored.

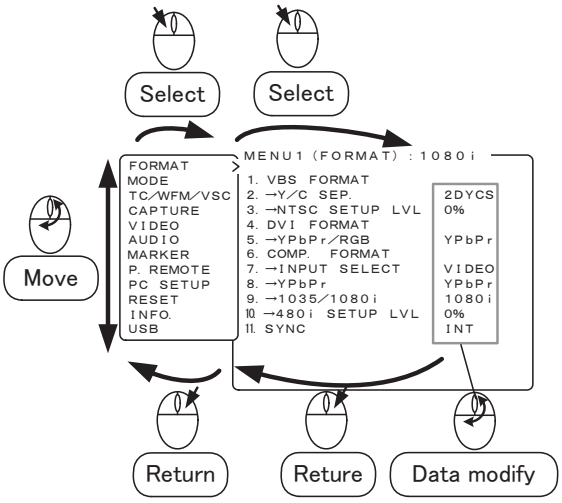
6. Mouse menu function

6-1. Basic procedure of the mouse menu



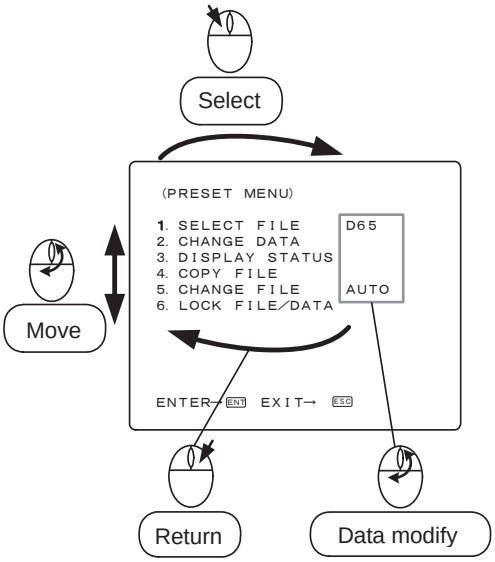
6-2. Basic procedures on the MENU and PRESET MENU screens

① Basic mouse behavior on the MENU screen



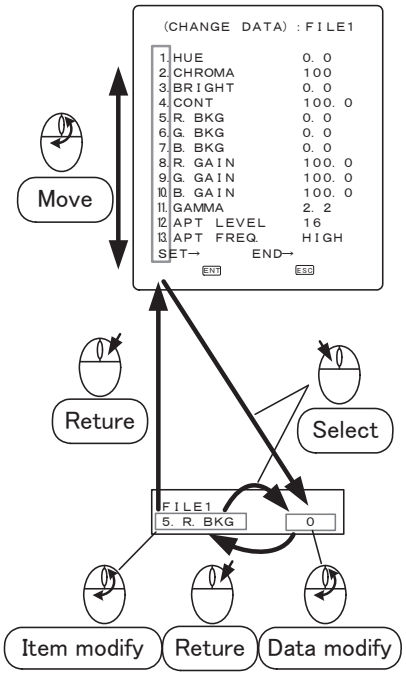
- Left-click the mouse to go to the right of the MENU screen and select an item. Right-click it to return to the left-hand items.
- The scroll wheel is used to move vertically and to change the settings.
- When there are two or more settings to select on the right-hand data like the USB memory's date setting, left-click the mouse to go to the settings to modify.

② Basic mouse behavior on the PRESET MENU screen



- The behavior is the same as Item ①.

③ Basic mouse behavior on the CHANGE PRESET screen



7. Specifications

7-1. General specifications

(1) Supply voltage

AC input

・100V～120V±10%　50／60Hz

・200V～240V±10%　50／60Hz

(2) Power consumption

AC100-120V : 1.1A

AC200-240V : 0.6A

Max. 107W (Standard type)

Max. 112W (with full options)

(3) Ambient operating temperature/humidity, ambient storage temperature/humidity

Operation: 0°C to +40°C, 20% to 85% (non condensing)

Storage: -10°C to +50°C, 5% to 85% (non condensing)

Maximum wet-bulb temperature: 29°C

(4) Outside dimensions (excluding protrusions)

562mm(W)×398mm(H)×101.3mm(D)

(5) Weight

Approx. 9.3kg (excluding the stand and option)

Approx. 2.3kg (stand)

(6) Standard accessories

Tilt stand (to be set up on the monitor)

Operation manual, Parallel remote connector, AC Power cable

x1 each

7-2. Rated performance

(1) SDI signal (supported as standard)

a) Input/output terminal

Input: BNC 2 lines

Output: BNC 1 line (Active loop through for only one line selected)

b) Input signal format (Auto detection)

・HD-SDI : SMPTE292M

1035i/60,59.94	1080p/25
1080i/60,59.94	1080p/24, 23.98
1080i/50	720p/60,59.94
1080psF/30,29.97	720p/50
1080psF/25	720p/30,29.97
1080psF/24,23.98	720p/25
1080p/30, 29.97	720p/24,23.98

・SD-SDI（4:2:2）: SMPTE 259M

480i/59.94	575i/50

c) Input level

Rating: 800mVp-p±10%

d) Transmission speed

HD-SDI : 1.485Gb/s

SD-SDI : 270Mb/s

e) Quantization bit rate

10 bits

f) Input/output impedance

75Ω

g) Transmission distance

Over 100m (5CFB, 1.485Gb/s)

(2) SDI signal (when the optionl D3G-240A/D is mounted)

a) Input/output terminal

Input: BNC 2 lines

Output: BNC 1 line (Active loop through for only one line selected)

b) Input signal format (Auto detection)

・3G-SDI : SMPTE424M

1080p/60, 59.94　1080p/50

YCbCr　4:2:2　10bit

LEVEL A/B

・HD-SDI : SMPTE292M

1035i/60,59.94	1080p/25
1080i/60,59.94	1080p/24, 23.98
1080i/50	720p/60,59.94
1080psF/30,29.97	720p/50
1080psF/25	720p/30,29.97
1080psF/24,23.98	720p/25
1080p/30, 29.97	720p/24,23.98

・SD-SDI（4:2:2）: SMPTE 259M

480i/59.94	575i/50

c) Input level

Rating : 800mVp-p±10%

d) Transmission speed

3G-SDI : 2.97Gb/s

HD-SDI : 1.485Gb/s

SD-SDI : 270Mb/s

e) Quantization bit rate

10 bits

f) Input/output impedance

75Ω

g) Transmission distance

Over 100m (5CFB, 1.485Gb/s)

(3) Analog composite (NTSC/PAL-B) signal (supported as standard)

a) Input terminal

BNC 2 lines (Loop through)

b) Input signal format

NTSC composite signal SMPTE 170M

PAL composite signal

c) Input level

VS: 1.0Vp-p, Positive polarity

V: 0.714Vp-p (NTSC)/0.7Vp-p (PAL), Positive polarity

d) Input impedance

High impedance bridge connection or 75Ω termination

(75Ω termination plug is optional.)

(4) External sync signal

(when the optional CM-175 is mounted)

Analog component input

a) Input terminal

BNC 1 line (Loop through)

b) Input level

0.3 to 4 Vp-p, three values in positive and negative polarities, two values in negative polarity

c) Input impedance

High impedance bridge connection or 75Ω termination

(75Ω termination plug is optional.)

(5) Analog component (RGB/YPbPr) signal

(when the optional CM-175 is mounted)

a) Input terminal

BNC 1 line (single end)

b) Input signal format

・HDTV

1035i/60,59.94	SMPTE 240M
1080i/60,59.94	SMPTE 274M
1080i/50	SMPTE 274M
1080psF/30,29.97	SMPTE RP211
1080psF/25	SMPTE RP211
1080psF/24,23.98	SMPTE RP211
1080p/60,59.94	SMPTE 274M
1080p/50	SMPTE 274M
1080p/30,29.97	SMPTE 274M
1080p/25	SMPTE 274M
1080p/24,23.98	SMPTE 274M
720p/60,59.94	SMPTE 296M
720p/50	SMPTE 296M
720p/30,29.97	SMPTE 296M
720p/25	SMPTE 296M

・SDTV

480i/59.94	SMPTE 253M
575i/50	EBU N10
480p/59.94	SMPTE 293M

c) Input level

Y/GBR: 0.7Vp-p (except SYNC), Positive polarity

Pb, Pr: ±0.35Vp-p, Positive polarity

SYNC: ±0.3Vp-p (SYNC on Y/G)

d) Input impedance

75Ω termination

(6) DVI-D and Analog PC signal

(Analog when the optional CM-175 is mounted)

*DVI-D supported as standard

a) Input terminal

ANALOG:HD D-SUB 15-pin (female) 1 line (when the optional CM-175 is mounted)

DIGITAL:DVI-D single link 24-pin (female) 1 line (supported as standard)

b) Input signal format

・DVI-D (VIDEO)

1080i/60,59.94	720p/60,59.94
1080i/50	720p/50
1080psF/30,29.97	720p/30,29.97
1080psF/25	720p/25
1080psF/24,23.98	720p/24,23.98
1080p/60,59.94	
1080p/50	
1080p/30,29.97	
1080p/25	
1080p/24,23.98	
480i/59.94	
575i/50	480p/59.94

・DVI-D(PC), Analog PC signal format

→Refer to **"Data 1 PC Input Signal Compatible Format"**.

c) Input level

Analog RGB: 700mVp-p, Positive polarity

DVI-D: TMDS

d) Input impedance

Analog RGB : 75Ω

DVI-D : 50Ω

(7) Embedded audio specification

(supported as standard)

(when the optional D3G-240A/D is mounted)

a) Input signal format

・SMPTE 299M

1035i/60,59.94	1080p/25
1080i/60,59.94	1080p/24,23.98
1080i/50	720p/60,59.94
1080psF/30,29.97	720p/50
1080psF/25	720p/30,29.97
1080psF/24,23.98	720p/25
1080p/30,29.97	720p/24,23.98
1080p/60,59.94(*)	1080p/50(*)

(*) : only the optional D3G-240A/D

・SMPTE 272M

480i/59.94 (4:2:2)	575i/50 (4:2:2)

b) Format detection

Auto detection

c) Sampling frequency

48kHz (Synchronized with video clock)

d) Embedded audio output

The audio on each of paired channels downmix, ch1/2, ch3/4, ch5/6 and ch7/8 is output through the built-in stereo speaker, the headphone and analog audio output.

(8) Embedded analog audio output (when the optional EA-240A or D3G-240A are mounted)

* Analog audio level 0dBs 0.775Vrms

a) Output terminal:
XLR-5-32 type (XLR type 5-pin male)
→Refer to **"Data 2 Embedded analog audio outputs (EA-240A)"**.

b) Line output
Analog audio 2-channel
Active (no-transformer) balanced output type

c) Rated output level:
+4dBs * Load impedance 10kΩ
(At –20dBFS digital audio level)

d) Max. Output level:
+24dBs * Load impedance 10kΩ
(At 0dBFS digital audio level)

e) Output impedance
50Ω

f) Min. Load impedance
600Ω

g) Quantization bit rate
24bits/ch

h) Emphasis
50/15μs digital emphasis (Auto detection)

i) Frequency response
20Hz～20kHz ±1dB

j) S/N ratio
More than 80dB

k) Dynamic range
More than 80dB

l) Crosstalk
More than 60dB (1kHz, Max. Output)

m) Harmonic distortion
Less than 0.1% (Rated output)

(9) Embedded AES/EBU audio output (when the optional EA-240D or D3G-240D are mounted)

* Digital audio level: 0dBFs=full bit in full scale

a) Output terminal:
BNC (Paired channel) 4 lines

b) Output standards
AES/EBU standards (for monitor)

c) Output impedance
75Ω

(10) Embedded audio level meter (supported as standard)

a) Display method
Superimposition on screen

b) Display channel
8 ch

c) Display position
3 types

d) Display mode
6 modes

e) Display segment
26 segments (including -∞)

f) Segment point
-∞、-60、-54、-48、-44、-40、-38、-36、-34、-32、-30、-28、-26、-24、-22、-20、-18、-16、-14、-12、-10、-8、-6、-4、-2、0dB

g) Display color
-∞ ～ -22dB : Green
-20～ 0dB : Amber

h) Peak hold
About 1 sec (ON/OFF of the indication is pssible by MENU setting)

i) Release time
About 0.4 sec

(11) Analog audio input (supported as standard)

a) Input terminal
RCA 2 line

b) Input level
0dBV max
*0dBV = 1Vrms

(12) Speaker output (supported as standard)

a) 2-channel output
1 W + 1 W or more (at the distortion factor of 1.5%)

b) Input signal source
Analog audio input or embedded audio input can be outputted. A signal to be outputted is set on MENU.
* With the headphones being connected, no sound is heard from the speakers.

(13) Headphones output (supported as standard)

a) 2ch output (3.5 mm dia. stereo mini-jack type)
85 mW/ch (RL: 32 Ω, distortion factor: 1%)

b) Input signal source
Analog audio signal or embedded audio signal can be outputted.
To select one of these signals, make the setting on MENU.

7-3. Specifications for liquid crystal display (LCD) module

(1) Number of pixels
1920 (H) x 1200 (V) dots

(2) Pixel pitch
0.270mm(W) × 0.270mm(H)

(3) Screen size (display area)
518.4mm × 324.0mm
(Diagonal 61.1 cm, 24 V type)

(4) Screen brightness (brightness performance of LCD unit)

400 cd/m² (at full white input)

(5) Drive system

a-Si TFT active matrix, line sequential (non-interlace)

(6) Pixel arrangement

RGB vertical stripe

(7) Response speed

a) Ton + Toff: 13ms typ. (Ta = 25°C)

* The response speed from the 10% black to 90% white level and that from the 90% white to 10% black level are added together.

b) Gray to Gray: 6ms typ. (Ta=25°C)

(8) Contrast ratio

1000:1 (typ.)

(9) Number of display colors

1.07 billion colors (10bits)

(10) Viewing angle

Vertical/horizontal: 178° (contrast ratio: 10:1 or more)

7-4. Functions

(1) Front operation

・Switch

POWER ON/OFF、CH A/B、INPUT(SDI/VBS/DVI/OPT)、MONO、SCREEN、APT、SCAN、ASPECT、MARKER、F1、F2、MENU、PRESET、ENT、ESC、TEST

・Volume

CHROMA、BRIGHTNESS、CONTRAST (BACKLIGHT)、AUDIO

(2) Marker function

a) Center marker

(Set to ON/OFF using MENU settings)

b) Safety marker

Any of the following markers is displayed according to the image aspect ratio (4:3/16:9). The numbers in parentheses show the aspect at the time of marker display.

＜Types＞

・"Safety area marker" + 100% (4:3/16:9)

The "safety area markers" are effective over the entire screen and can be preset 1% by 1% in the range of 80-99%.

・5 divided crosshatch (4:3/16:9)
・10 divided crosshatch (4:3/16:9)
・Cross (4:3/16:9)
・16:9 aspect marker (4:3)
・15:9 aspect marker (4:3/16:9)
・14:9 aspect marker (4:3/16:9)
・13:9 aspect marker (4:3/16:9)
・4:3 aspect marker (16:9)
・1.85:1 aspect marker (16:9)
・2.35:1 aspect marker (16:9)
・"Each aspect marker" + "Safety marker in aspect" (4:3/16:9)

The "safety marker in aspect" refers to the safety marker with respect to the aspect marker display zone, and can be preset 1% by 1% in the range of 80-99%.

Corresponding to each aspect marker.

＜Marker level＞

・Set in five steps of 20%, 40%, 60%, 80% and100%

(3) Shadow function

Creates a shadow outside the aspect areas with 4:3 (16:9 mode), 13:9, 14:9, 15:9, 16:9 (4.3 mode), 1.85:1 (16:9 mode) and 2.35:1 (16:9 mode).

＜Types＞

・"Various aspect markers" + "Shadow"
・"Various aspect markers" + "Safety marker in aspect" + "Shadow"
・Shadow only

＜Shadow contrast level＞

・Set in four steps of 0%, 20%, 40% and 60%.

(4) User marker function

Function for the user to draw their desired lines and boxes in the unit of pixels.

a) No. of types: 10

b) No. of colors: 6

c) Drawable sizes: 1920 x 1080 pixels

d) Drawing method: Switch or USB mouse

* Patent pending

7-5. Remote Control

(1) Parallel remote control

Input connector: HD D-SUB 15-pin

・CH A/B switching
・SDI ON/OFF
・3G-SDI ON/OFF (★)
・COMPONENT ON/OFF
・DVI-D ON/OFF
・ANALOG PC ON/OFF (★)
・COLOR/MONO switching
・RGB/YPbPr switching
・4:3/16:9 switching
・SYNC INT/EXT switching
・MARKER ON/OFF
・SHADOW ON/OFF
・R TALLY ON/OFF
・G TALLY ON/OFF
・SHADOW0 ON/OFF (★)
・SHADOW20 ON/OFF (★)
・SHADOW40 ON/OFF (★)

・SHADOW60 ON/OFF (★)

*For the pin function, refer to **"Data 3 Parallel Remote Pin Function"**.

*In addition to default setting, user setting is possible.
The "★" marked settings are used in the USER mode.

(2) Serial remote control

(The controller SRC-301A/Z is optional.)
Input/output terminal:
BNC 1 lines (Loop through)
Input level
1.9Vp-p, Negative polarity
Input impedance
High impedance bridge connection or 75 termination

* For the control items, refer to **"Data 4 Control with Remote Controller"**.

(3) Wireless remote control

(The controller RCT-30A is optional.)

* For the control items, refer to **"Data 4 Control with Remote Controller"**.

(4) RS-485 remote control (customized)

Connector: RJ-45 (loop-through)
Maximum number of connections: 32 units

8. Applicable Standards

8-1. Safety standards

・UL60950-1
・EN60950-1

8-2. Electromagnetic interference

・VCCI Class-A
・FCC Class-A
・EN55103-1 E4
・EN55103-2 E4
・EN55022 Class-A

8-3. Environmental regulations

・Compliant with RoHS Directive

9. Mounting Bracket

Equipped with "100mm x 100mm" mounting holes compliant with the VESA mount interface standards. Other mounting holes also available.
(Refer to the external view.)

10. Options

Any one of the following optional modules can be mounted. Each module is of plug-in type for easy replacement.

(1) CM-175

"RGB/YPbPr, EXT SYNC module"
RGB/YPbPr: BNC 1 line, single end
EXT SYNC: BNC 1 line, loop through
PC analog RGB: HD D-sub, 15-pin (female), 1 line, single end

(2) D3G-240A

"3G-SDI support multi-format SDI inputs module (with analog audio output)"
SDI Input: BNC 2 line
SDI Output:BNC 1 line (Active loop through for only one line selected)
Embedded analog audio output : XLR-type 5-pin (XLR-5-32 male) outputs DOWNMIX, CH1/2, CH3/4, CH5/6 and CH7/8 on the MENU screen.

(3) D3G-240D

"3G-SDI support multi-format SDI inputs module (with embedded AES/EBUoutput)"
SDI Input: BNC 2 line
SDI Output:BNC 1 line (Active loop through for only one line selected)
Embedded AES/EBU output : BNC 8-ch output

(4) EA-240A

"Embedded analog audio output module"
This module sets a 2-channel output out of the XLR-type 5-pin (XLR-5-32 male) outputs DOWNMIX, CH1/2, CH3/4, CH5/6 and CH7/8 on the MENU screen.

(5) EA-240D

"Embedded AES/EBU output module"
AES/EBS BNC 8-ch output

(6) SRC-301Z

"Serial remote controller"
Serial remote controller capable of remote controlled operation simply by connecting the BNC cable to the serial remote input mounted as standard.
Just this unit can control all of the monitor functions. When plural monitors are connected in loop with BNC cables, up to 99 monitors can be controlled individually or collectively.

(7) RCT-30A

"Infrared remote controller"

Just this unit can control most of the monitor functions. Up to 99 monitors can be controlled individually.

(8) STD-240T (made-to-order)

"Tilt stand"

The tilt stand is of center pivotal type.

Tilting angle: 8° downward, 45° upward

(9) RS-2450T

"Rack mount bracket (angle-fixed type)"

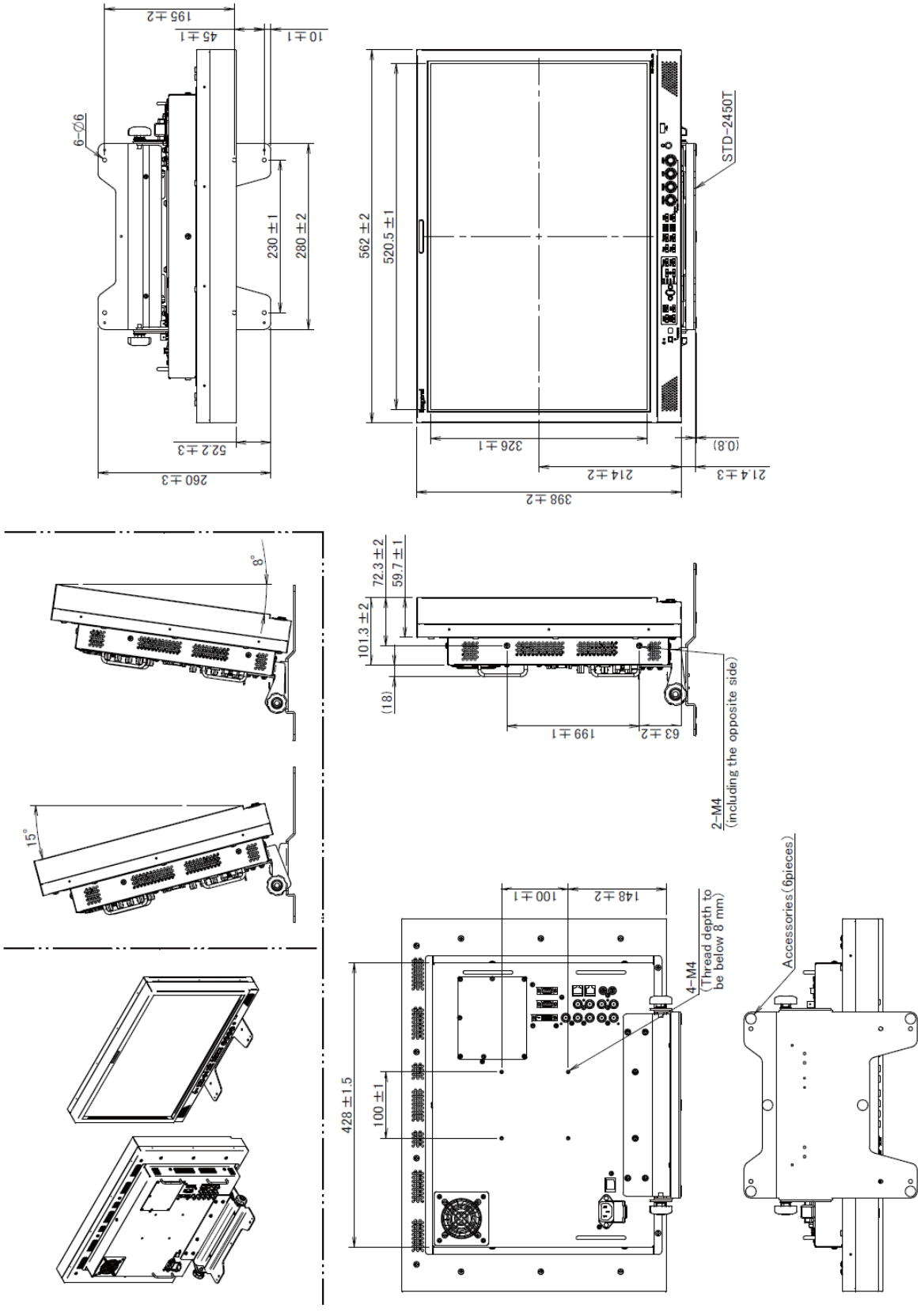
Comes with 19-inch rack mount.

* The monitor itself is wider than the 19-inch rack mount. It should be noted, therefore, that the monitor front stretches out of the rack mount width. When setting up the rack mount, keep this in mind.

* The specifications and appearance of this product are subject to change for product improvements without notice.

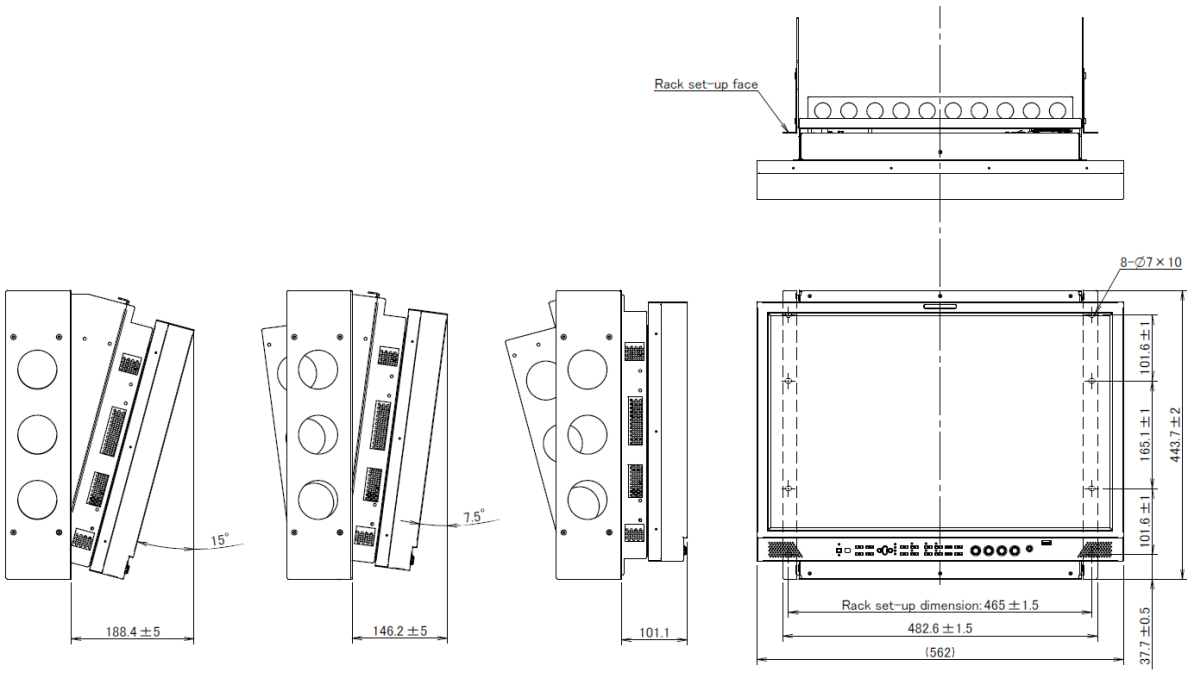
* Black spots and luminescent spots may occur in 0.01% or less of the effective pixels of this product. This is not a failure.

11. External View

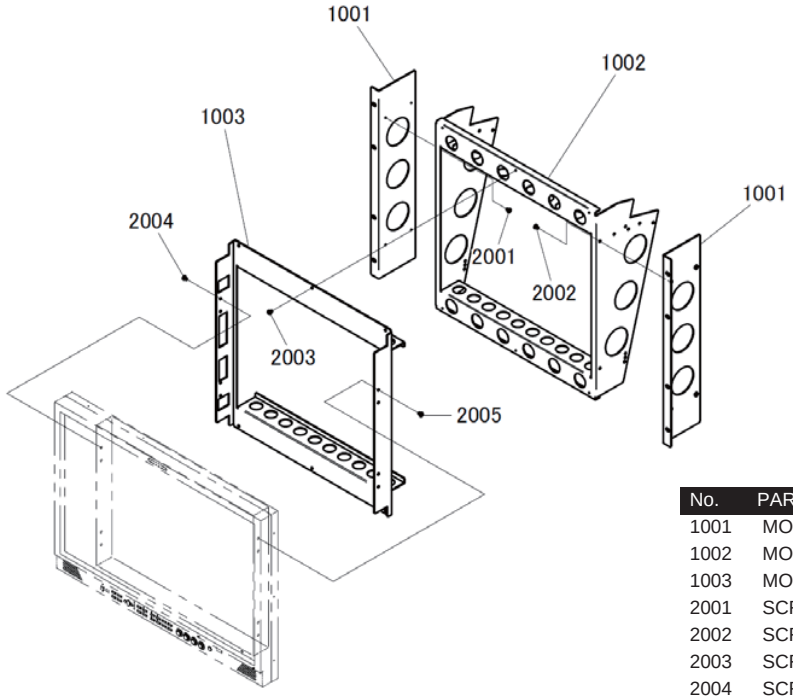


◆RS-2450T Rack Mount

① External View



② Rack set-up drawing

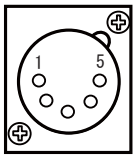


No.	PARTS NAME	PARTS No.	Q'ty
1001	MOUNT BKT 1	M4-925306-000	2
1002	MOUNT BKT 2	M3-925305-000	1
1003	MOUNT BKT 3	M3-925308-000	1
2001	SCREW	MCB4-6FB	4
2002	SCREW	MCB4-6FB	4
2003	SCREW	MCB4-6FB	6
2004	SCREW	MCB4-8FB	4
2005	SCREW	MCB4-8FB	4

Data 1　PC Input Signal Compatible Format

No.	Input signal	Horizontal frequency (kHz)	Vertical frequency (Hz)	Clock frequency (MHz)
1	VGA (640×480)	31.48	59.95	25.18
2		37.86	72.81	31.50
3		37.50	75.00	31.50
4		43.27	85.01	36.00
5	SVGA (800×600)	35.16	56.25	36.00
6		37.88	60.32	40.00
7		48.08	72.19	50.00
8		46.88	75.00	49.50
9		53.67	85.06	56.25
10	XGA (1024×768)	48.36	60.00	65.00
11		56.48	70.07	75.00
12		60.02	75.03	78.75
13		68.68	85.00	94.50
14	WXGA(1280×768)	48.13	60.02	81.25
15	SXGA(1280×1024)	63.98	60.02	108.00
16	UXGA(1600×1200)	75.00	60.00	162.00
17	WUXGA(1920×1200)	73.46	60.61	157.50

Data 2　Embedded analog audio outputs (EA-240A , D3G-240A)

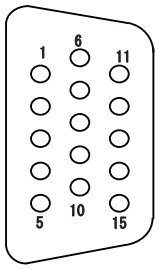


Pin 1 : GND
Pin 2 : Odd channel hot output
Pin 3 : Odd channel cold output
Pin 4 : Even channel hot output
Pin 5 : Even channel cold output

For the embedded analog audio 2-channel output, a pair of channels to be selected from among eight channels [downmix, ch1/2, 3/4, 5/6, 7/8] can be set on MENU.
By default, the [ch1/2] pair is set.

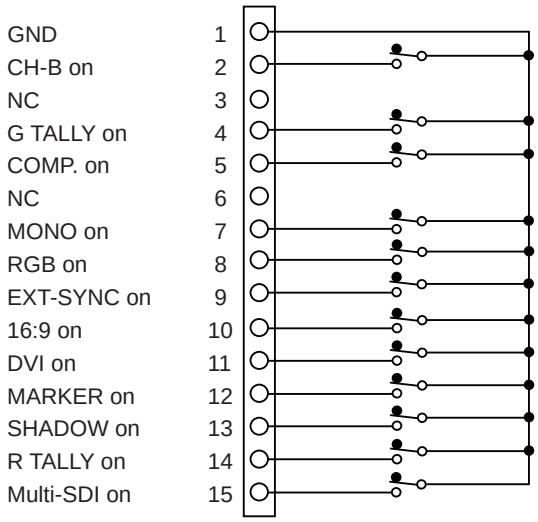
Data 3 Parallel Remote Pin Function

Connector Face View on Rear Panel



<Connector on system side>
D-Sub 15-pin (male) mini-type
* Connector
CD0115PA100: CVILUX-made
* Case
DE-C8-J9-F2-1:
Japan Aviation Electronics Industry-made
※ The above parts or equivalents are supplied as standard.

Wiring of Remote Connector (by default)



■ **Pin functions by default**

Pin No.	Function	External Assignment for Function
1	GND	Connecting remote terminals to this pin enables ON control.
2	CH-B on	Connect to Pin 1 to select B channel in the analog composite or Multi-SDI input mode. * When Pin 2 is OPEN, the A channel will be selected.
3	NC	No connection
4	G TALLY on	Connect to Pin 1 to set G TALLY to ON.
5	COMP. on	Connect to Pin 1 to select the COMP. input with the CM-175 mounted. * When Pins 5, 11 and 15 are all open, the analog composite will be selected.
6	NC	No connection
7	MONO on	Connect to Pin 1 to switch the COLOR/MONO setting to MONO.
8	RGB on	In COMP input selection, connect this pin to No.1 pin for switching the mode to RGB.
9	EXT-SYNC on	Connect to Pin 1 to switch the sync mode of the analog input to the external sync (EXT SYNC) with the CM-175 mounted.
10	16:9 on	Connect to Pin 1 to change the aspect (4:3/16:9) of SDTV signals to 16:9. * If the setting is to be controlled simultaneously with channel switching, set [CHANGE ASPE] to [MANUAL] in MENU 2-3.
11	DVI on	Connect to Pin 1 to select the DVI input mode. * When Pins 5, 11 and 15 are all open, the analog composite will be selected.
12	MARKER on	Connect to Pin 1 to set MARKER to ON.
13	SHADOW on	Connect to Pin 1 to set SHADOW to ON. * The shadow is displayed in the MENU7-preset level.
14	R TALLY on	Connect to Pin 1 to set Red TALLY to ON.
15	Multi-SDI on	Connect to Pin 1 to select the Multi-SDI input module. Use together with Pin 2 to switch between channels A and B. * When Pins 5, 11 and 15 are all open, the analog composite will be selected.

■ **Additional user-set functions**

Pin No.	Function	External Assignment for Function
User setting	SHADOW0 on	Connect to Pin 1 for running with the shadow level 0% (black). * Priority is given to this pin function if any other shadow setting pin is pressed at once.
User setting	SHADOW20 on	Connect to Pin 1 for running with the shadow level 20%.
User setting	SHADOW40 on	Connect to Pin 1 for running with the shadow level 40%.
User setting	SHADOW60 on	Connect to Pin 1 for running with the shadow level 60%.
User setting	ANALOG PC on	Connect to Pin 1 for selecting the ANALOG PC input with CM-175 mounted. * When all the input select pins are open, the analog composite signal is selected.
User setting	3G-SDI on	Connect to Pin 1 for selecting the 3G-SDI input with D3G-240A/D mounted. * When all the input select pins are open, the analog composite signal is selected.

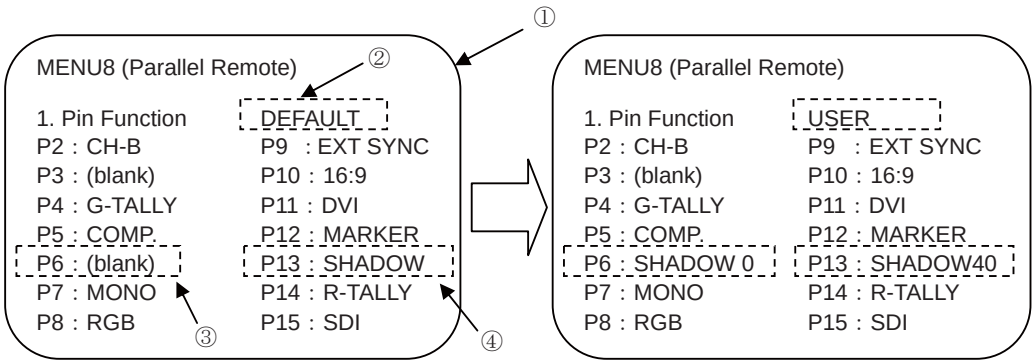
* The functions of pins other than 1 are freely user-settable on MENU.

Setting of two shadow levels and behavior

The shadow levels can be very quickly switched each other. To do this, make the user setting to assign the parallel-remote pin functions to “SHADOW0”, “SHADOW20”, “SHADOW40”, “SHADOW60”, etc.

Typical setting procedure and behavior are shown below.

■ **Setting procedure**



①First press the “MENU” switch and make the “MENU8” screen appear.

②Move the cursor to “DEFAULT” and enter “USER” instead.

③Move the cursor to “P6: (blank)” and enter “P6: SHADOW0” (black) instead.

④Move the cursor to “P13: SHADOW” and enter “P13: SHADOW40” instead.

* In the above setting, priority is given to Pin 6 if Pins 6 and 13 are pressed at once.

■ **Behavior**

Item	MARKER	SHADOW(40%)	SHADOW(0%)	Behavior
	Terminal (12)	Terminal (13)	Terminal (6)	
1	“ON”	OFF	OFF	MARKER ON
2	“ON”	“ON”	OFF	MARKER＋SHADOW(40%) ON
3	“ON”	OFF	“ON”	MARKER＋SHADOW(0%) ON
4	“ON”	“ON”	“ON”	MARKER＋SHADOW(0%) ON *Priority to 0%
5	OFF	“ON”	OFF	SHADOW(40%) ON
6	OFF	OFF	“ON”	SHADOW(0%) ON
7	OFF	“ON”	“ON”	SHADOW(0%) ON *Priority to 0%

* The types of markers displayed are those set on “MENU”.

Data 4　Control with Remote Controller

Control item	Serial remote SRC-301A/Z	Wireless remote RCT-20A/30A	Remarks
■Switch functions			
VIDEO SELECT	—	○(※1)	
VIDEO A (VBS)	○	—	
VIDEO B (VBS)	○	—	
RGB/YPbPr	○	—	
SDI A	○	—	
SDI B	○	—	
PC	○	—	
TEST	○	○(※1)	
APERTURE ON/OFF	○	○	
COLOR/MONO	○	○	Ineffective in RGB/PC input
BLUE ONLY ON/OFF	○	○	
DELAY (H/V/PCR)	○	○	Ineffective in VBS/PC input
4:3/16:9 SCAN SELECT	○	○	Ineffective in HDTV input
SYNC INT/EXT	—	○	Ineffective in VBS/SDI/PC input
FILE SELECT	○	○	
MARKER ON/OFF	○	○	
MENU	○	○	
■Variable preset level functions			
HUE	○(※2)	○(※2)	
CHROMA	○(※2)	○(※2)	
BRIGHTNESS	○(※2)	○(※2)	
CONTRAST	○(※2)	○(※2)	
APERTURE	○(※2)	○(※2)	
R/G/B GAIN	○(※2)	○(※2)	
R/G/B BACKGROUND	○(※2)	○(※2)	
BACK LIGHT	○(※2)	○(※2)	

※1：The switch toggles the modes as follows.

"SDI-A" → "SDI-B" → "VBS-A" → "VBS-B" → "DVI" → "RGB/YPbPr" (when the CM-175 is mounted) →"Analog PC" (when the CM-175 is mounted) →"3GSDI-A " (when the D3G240A/D is mounted) →"3GSDI-B " （when the D3G-240A/D is mounted)→ "SDI-A" …

To give the TEST signal, hold down the VIDEO switch for about 3 seconds.

※2：Adjustments through MENU operation.

MODEL HLM-2450WB

MULTI FORMAT
LCD COLOR MONITOR

OPERATION MANUAL

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OMH2450B-U/E

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