MODEL

HTM-1917R

HDTV/SDTV MULTI FORMAT
COLOR MONITOR

OPERATION MANUAL

Ikegami

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.

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).

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

Instructions for Disposal of Electric and Electronic Equipment in Private Household

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.

INFORMATION TO USER FOR FCC

Warning

This equipment generates, uses and can radiated radio frequency energy and if not installed and used in accordance with the instruction manual. May cause interference to radio communications.
It has been tested as a Class A computing device and found to comply within the limits for a Class A computing device in accordance with the specifications in subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this equipment in a residential area is likely to cause interference in which case the user will be required at his own expense to take whatever measures may be required to correct the interference.

IMPORTANT SAFETY INSTRUCTION

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.

IMPORTANT SAFETY INSTRUCTION

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.
4) Avoid operating or placing (keeping) in a hot (+40°C or over) or cold (less than 0°C), high vibration, or dusty place. Avoid operating or placing (keeping) in a place exposed to direct sunlight, otherwise the CRT surface may deteriorate.
5) If an image of extremely high brightness is displayed on the screen for a long time, the CRT 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 benzine 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 benzine or thinner.
Otherwise, the paint may peel away.

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

6) Avoid using or storing this unit in the following places:
   - Hot (+40ºC or more) or cold (0ºC or less) places.
     Especially where this unit may be exposed to the direct rays of the sun; the cabinet may deform and the fluorescent screen of the CRT may deteriorate.
   - 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.

7) 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.

8) 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.

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

Precautions Upon Use

To ensure safe use of this monitor, read this manual carefully, paying particular attention to the following items.

1. **Do not use any power supply other than the regulation AC power.**

2. **Do not subjecting the monitor to strong impact.**
   Otherwise, it will result not only in malfunction, but explosion of the CRT as well.

3. **Avoid use and storage in the following places.**
   * **Locations which do not meet the designated ambient temperature**
     installing the monitor near equipment generating heat or in cabinets with closed vents causes the internal temperature of the monitor rise, which not only reduces the life of the electrical parts but also causes malfunction.
   * **Locations with rain, snow, or excess humidity**
     Locationing the monitor in the above conditions will cause malfunction.
   * **Strong magnetic fields**

4. **Avoid exposing the CRT to sunlight**
   Subjecting the CRT to direct sunlight for a long period of time deteriorates the florescent faces of the CRT. So avoid use outdoors.

5. **Avoid exposing to high luminance fixed image for long periods of time**
   Take care as this will cause burning of the CRT.
   Also avoid displaying remote numbers in the remote entry state (remote numbers are displayed when the wireless remote controller is used) for long periods of time. When not using the wireless controller, set the remote number displayed on the screen to OFF.

Guarantee

Malfunctions occurring in normal use within one year from the date of purchase will be repaired free of charge. This does not apply to the fuses.
If no image is displayed after user adjustment or if malfunction is suspected, contact your nearest Ikegami dealer.

Accessories

This monitor is provided with the following accessories.
Check that none is missing.

1. Operation manual
2. AC cable
3. Remote connector

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

CONTENTS

HTM-1917R Multi-Format Color Monitor

1. Outline

1-1. Outline

This 19-inch type HDTV/SDTV multi-format color monitor has been designed taking into consideration compatibility with all HDTV formats as, well as, the combined use of HDTV and SDTV formats, and also active use in all kinds of spaces such as sub-control rooms, editing rooms, monitor wall, transmission control desks, OB Van, etc.

This monitor is compatible with HDTV:1080i/1035i/720p, SDTV:480i and NTSC/PAL-B and multi TV formats (including options) to deal with diverse broadcasting formats and system needs. It can also be connected easily with current analog component and composite inputs, as well as, HD/SD serial digital inputs.

The monitor adopts a plug-in module method which enables the system to be changed or expanded by simply plugging in the module without opening the cover. This professional color monitor also takes into account ease of expendability and maintenance.

Newly developed SDI module supports multi-format inputs. In addition, an optional module supporting embedded audio is also available.

Embedded audio incorporates versatile functions such as analog or AES/EBU digital outputs and audio level meter display, making the monitor highly cost effective due to its capability of simultaneous video and audio monitoring with a single unit.

1-2. Features

Multi-format

The monitor supports the following broadcasting formats.

- 480i/59.94: ITU-601
- 575i/50: ITU-601
- 1035i/60,59,94: SMPTE240M, BTA S-001B
- 1080i/60,59,94: SMPTE274M
- 1080i/50: SMPTE274M(Option)
- 1080p/24sF,23.98sF: SMPTE RP211(Option)
- 720p/60, 59.94: SMPTE296M
- 480p/60, 59.94: SMPTE293M (Option)

Multi-format SDI

The Multi-format SDI module (DKM-511B) is capable of accepting both HD-SDI and SD-SDI (4:2:2) signals in the same input terminal.

The monitor automatically identifies HD-SDI or SD-SDI (4:2:2) signal input for display in appropriate format.

Compatibility with embedded audio output

Equipped with demultiplexer circuit, the optional multi-format SDI module (AV or AVD type), which supports embedded audio output, can extract and output the audio signal multiplexed with HD-SDI signal or SD-SDI (4:2:2) signal.

The module is available in two types in terms of its audio output, AV type producing 2-channel analog output (output channel to be set in MENU) and AVD type producing AES/EBU digital 8-channel output.

Embedded audio level meter

DAM-504 and **DAM-508** modules (optional) are the audio level meters that work with the embedded audio to monitor 4-channel or 8-channel audio signal multiplexed with SDI signal.

Easily visible LED meter installed in the escutcheon will not obstruct video monitoring. Integrated with the monitor, the meter requires no extra space.

Remote control functions

The monitor can be remote-controlled with the use of three remote control functions. Depending on the place of installation and type of operation, a parallel, infrared, or serial remote controller can be used.

In addition to the conventional parallel remote control, the monitor also comes equipped as standard with serial remote input interface which enables remote control with just one BNC coaxial cable.

By connecting various monitors (**17/18/20/30/80/90/HTM/HLM series monitors**) by the loop-through method, up to 99 monitors can be remote-controlled individually, using the optional remote controller **SRC-301Z**.

The infrared wireless remote controller **RCT-30A** is also available as an option.

Digital control

Digital data is processed in 10-bit. The rotary encoder enables easy adjustment and changes to the data.

The screen size and position, as well as, side pin compensation can also be controlled remotely, thus allowing flexible compatibility with various signal formats.

Memory of 4 different of color temperatures

As the monitor is able to memorize other color temperatures in addition to the D93/D65 color temperatures set as default, the optimum white balance can be set promptly, as well as, easily according to the input image conditions and purpose of use.

BFS (Beam feedback system)

By adopting a BFS circuit for detecting CRT cathode current, stable black balance can be obtained for a long period of time even when the CRT emission changes.

Built-in 3-line comb filter (NTSC)

With NTSC analog composite signal input, the decoder module which includes a 3-line comb filter circuit realizes a high resolution picture by the digital delay method, using 8 fsc clock.

The **Faroudja™** format 3-line comb filter used for Y/C separation reproduces high picture quality images with minimum cross color and cross luminance.

* Requires the optional NTSC decoder module **DE-801**.

Rich variety of internal test signals

The monitor is equipped with a variety of useful test signals for adjustments such as crosshatch, flat field (50%), window (100%), character, and staircase waveform with pluge.

The format of the test signal can also be selected from HDTV:1080i/1035i/720p, SDTV:480i/575i by MENU settings.

Built-in markers

4:3 markers can be displayed on 16:9 images.

80%, 88%, 90%, 93%, 100% and other markers can be displayed for the 4:3/16:9 aspects in NTSC.

Shadow function

While displaying pictures with an aspect ratio of 16:9, the monitor displays 4:3, 13:9, and 14:9 image areas and creates a shadow (the shadow contrast is set up to about 40%) at the other image portion. This monitor is capable of viewing 4:3, 13:9, and 14:9 images simultaneously while monitoring 16:9 images.

As this shadow function can be turned on and off by remote control, prompt switching is realized.

Degauss timer function

The degauss timer function sets the timer so that auto degauss operations are performed automatically about 4 seconds after the power is turned ON. The timer can be set for each monitor at intervals of 0.5 seconds from 0 to 4.5 seconds.

This minimizes the rush current flowing when the power of a system comprised of multiple monitors is turned on at once.

Structure with enhanced maintenance and expendability

The signal processing module, including optional modules, are of the plug-in type which can be easily disconnected and connected from the back without the need to remove any cover, thus allowing easy maintenance.

Besides the DKM-511B multi-format SDI module and analog component signal (YPbPr) module, optional modules, can be added for expansion.

Use of high performance in-line gun CRT

A high performance in-line gun CRT of 0.25mm dot mask pitch is adopted to produce fine images with reduced reflection of external light.

A black matrix screen realizes images of high contrast with enhanced black purity.

Luminance compensation function by image size

In the case of the CRT monitor, when the image size is reduced from normal to under-scan or from 4:3 to 16:9 scan image size, the current density increases to cause a change of luminance. This monitor performs luminance compensation so that the luminance remains constant even when any of the four image sizes is changed.

HD 4:3 SCAN function

This function enlarges 4:3 image area only and displays it in full screen (aspect ratio 4:3) during the HDTV mode, thus allowing real-time monitoring of the image that would be obtained after down-converting to 4:3 aspect ratio of SDTV. During the HD 4:3 SCAN, the size of the 4:3 image area is magnified to the size comparable to the size of 24-inch 16:9 CRT screen.

High voltage regulation circuit

High voltage regulation circuit controls the pulse for each scan line, thus realizing the high voltage stability of ±0.5%. This regulation circuit ensures quicker response and minimal distortion in high luminance, resulting in an image of high stability.

Auto setup function

Use of the auto setup probe ASP-100 (option) (under development) enables automatic adjustment of the color temperature easily.

When the operator sets the desired color temperature to the monitor, any number of monitors can be automatically adjusted to this color temperature.

* The ASP-80 is also applicable.

2. General Specifications

2-1. Common Specifications

2-1-1 General

(1) **Power supply:**
AC single phase, 50/60 Hz
Within 100V area: 100V-120V ±10%
Within 200V area: 200V-240V ±10%

(2) **Power consumption:**
Max. 240W (with full options)

(3) **Ambient temperature:**
0ºC to +40ºC

(4) **Humidity:**
Below 90% (No condensation)

(5) **Dimensions and weight:**
450(W) x 399(H) x 515(D)mm, Approx. 37kg

(6) **Standard accessories:**
Power cable, remote connector, operation manual x 1 each

(7) **Operation:** Continuous

(8) **X-ray:** Less than 0.1mR/H
(Anywhere 50mm or remoter from the monitor)

2-1-2 Video Signals System

(1) **Frequency response:**
When inputting YPbPr

a) HDTV 60Hz~25MHz:+1dB/-3dB
More than 25MHz:Descending response

b) SDTV 60Hz~25MHz:+1dB/-3dB
More than 10MHz:Descending response

(2) **Sag:** Within 5%

(3) **Black level stability:**
For 10% to 90% APL changes: Within 1%

(4) **Aperture correction amount:**
Variable +6dB or more at the frequency below

a) HDTV 10MHz ± 25MHz

b) SDTV 4MHz...*

* SDTV mounting the optional decoder module (NTSC: **DE-801**, NTSC/PAL: **DE-811**) is compatible with analog/digital composite signal only.

(5) **Noise**

Sync noise: More than -46dB
Hum noise: More than -50dB
Others: More than -50dB

2-1-3 Brightness and Contrast

(1) **CRT**
Dot trio pitch: 0.25mm

(2) **Horizontal resolution**
More than 900 lines (480i/575i/1080i) with YPbPr input and 120 cd/m^2 in screen center

(3) **Preset contrast**
More than 120 cd/m^2 (Factory setting)

(4) **Maximum luminance**

a) SDTV (4:3) : 170 cd/m^2 (typ)

b) HDTV (16:9) : 240 cd/m^2 (typ)

(100% window signal input, brightness: PRESET, contrast: MAX)

2-1-4 Deflection/Sync System

(1) **16:9 display size**

a) **NORMAL:** 16:9 size within effective CRT screen frame

b) **UNDER:** 350(W) x 197(H)mm

(2) **Deflection**

a) SDTV

NORMAL SCAN: (4:3/16:9)
UNDER SCAN: (4:3/16:9)

b) HDTV

NORMAL SCAN: (16:9)
UNDER SCAN: (16:9)
HD 4:3 SCAN: (Zoom for 4:3 area)

(3) **Deflection distortion**
Within ±2% of screen height (Deflection linearity and raster distortion)

(4) **Sync stability**
Monitor sync keeps stable under the following input conditions:
Internal sync: ±6dB of rated video input level
External sync: External sync input level 0.3 to 6Vp-p

(5) **High voltage**
Generated voltage: 26kV ± 1kV
High voltage fluctuation:
Within ±0.5% (150µ A reference)
Beam current range within 0 to 600µ A

(6) **Convergence**
Inside the center circle of screen height diameter: Within 0.3mm
The rest of the screen area: Within 0.4mm

2-1-5 Functions

(1) **Marker function**

a) Center marker: Set to ON/OFF using MENU settings

b) Safe title:
The following markers are displayed according to the aspect (4:3/16:9).
( ) indicates the aspect when markers are displayed.

Types	
① 80%+100%	(4:3/16:9)
② 88%+100%	(4:3/16:9)
③ 90%+100%	(4:3/16:9)
④ 93%+100%	(4:3/16:9)
⑤ 5 divided crosshatch	(4:3/16:9)
⑥ 10 divided crosshatch	(4:3/16:9)
⑦ Cross	(4:3/16:9)
⑧ 14:9 marker	(16:9)
⑨ 13:9 marker	(16:9)
⑩ 4:3 marker	(16:9)
⑪ 4:3 marker + 80% (4:3) marker	(16:9)

(2) **Shadow function**

The following shadow is created in the 16:9 mode.

Types

① 14:9 marker + 14:9 shadow
② 13:9 marker + 13:9 shadow
③ 4:3marker + 4:3 shadow
④ 4:3 marker + 80% (4:3) marker + 4:3shadow
⑤ 14:9/13:9/4:3 Shadow only

(3) **Auto setup**

The white balance can automatically be adjusted using the auto setup probe ASP-100 (option) (under development).

(4) **Remote control**

a) **Parallel remote control channel**

COMPOSITE/AUX/HD-SDI/SD-SDI, YPbPr/RGB, COLOR/MONO, SYNC INT/EXT, 4:3/16:9, 4:3 MARKER ON/OFF, 4:3 SHADOW ON/OFF, R/G.TALLY ON/OFF

b) **Serial remote control**

The input interface is equipped as standard and is capable of controlling most of the monitor functions. The controller SRC-301Z is optional.

c) **Infrared remote control**

The infrared remote controller RCT-30A is optional.

(5) **Internal test signal**

The format can be switched by MENU settings.

Types

① Crosshatch
② 50% flat field
③ 100% window
④ Characters
⑤ Staircase waves with pluge signal

(6) **Beam feedback system (BFS)**

(7) **Menu assist**

- Input signal format setting
- RGB/YPbPr switching setting
- Test signal format setting
- Marker center cross display ON/OFF setting
- Marker color setting
- Remote ID setting
- Degauss timer setting
- % display of preset data
- Password setting
- Auto setup setting
- Embedded audio related setting

2-1-6 Memory

(1) **Memory type**

ROM: 64KB programmable ROM
RAM: 32KB static RAM

(2) **Battery backup**

Memory backup time: 10 years or longer
Battery: BR2330-1HF lithium battery

2-1-7 Applicable Standards

(1) **Safety standards:** Conforms to UL1950
(2) **Electromagnetic interference:** FCC Class-A
(3) **X-ray radiation:** DHHS

2-2. Individual Specifications

* DKM-511B multi-format SDI 2-input module and YPbPr/RGB 1-input module are equipped as standard.

2-2-1 YPbPr/RGB input module

1-input module (Standard)
Dual component module
(Optional for YPbPr/RGB 1-input expansion)

(1) **Input/output terminal**

a) YPbPr/RGB: 1-input module (Standard)
YPbPr/RGB: BNC 1 line (Loop through)
Sync signal input: BNC 1 line (Loop through)

b) **DCH-501**

YPbPr/RGB: BNC 1 line (Loop through)

(2) **Input signal format (YPbPr/RGB)**

a) **SDTV**

- 480i/59.94
- 575i/50
- 480p/59.94 (option)

b) **HDTV**

- 1035i/60,59.94
- 1080i/60,59.94
- 1080i/50 (option)
- 1080p/24sF, 23.98sF (option)
- 720p/59.94, 60
- 720p/50 (option)

(3) **Input level**

a) **HDTV** (BTA S-001B)

- Y, G, B, R input V: 700mVp-p Positive polarity
  S: ±300mVp-p
- Pb, Pr input V: ±350mVp-p Positive polarity
- Sync input: ±300mVp-p

b) **SDTV** (SMPTE/EBU N10)

- RGB input VS: 1.0Vp-p Positive polarity
  V: 0.7Vp-p Positive polarity

When all or none of R, G and B have sync signals, and when only G has sync signal.

- YPbPr input
  Y signal WHITE (100%): 700mVp-p
  SET UP: 0mVp-p
  SYNC: 300mVp-p
- PbPr signal: 525mVp-p
  (100/0/75/0 COLOR BAR)
- Sync input: 0.3-6Vp-p Negative polarity

(4) **Input impedance**

High impedance bridge connection or 75Ω termi nation
(75Ω termination plug is optional.)

(5) **Return loss**

More than 46dB (10MHz)

2-2-2 Multi-format SDI input module

- **DKM-511B** Multi-format SDI module (Standards)
- **DKM-511A** Multi-format SDI module
  Equipped with high performance x/sin x correction type video signal post-filter
- **DKM-511AAV/BAV**
  (Multi-format SDI module supporting embedded analog audio output)
- **DKM511AAVD/BAVD**
  (Multi-format SDI module supporting embedded AES/EBU audio output)

Video section

(1) **Input/output terminal**
Input: BNC 2 lines
Output: BNC 1 line (Active loop through for only one line selected)

(2) **Input signal format (HD/SD auto detection)**

a) **HD-SDI**
- 1035i/60,59.94
- 1080i/60,59.94
- 1080i/50
  (When supported by the monitor)
- 1080p/24sF, 23.98sF
  (When supported by the monitor)
- 720p/60,59.94
- 720p/50
  (When supported by the monitor)

b) **SD-SDI(4:2:2)**
- 480i/59.94
- 575i/50

(3) **Input level rating:** 800mVp-p±10%

(4) **Transmission speed**

a) **HD-SDI:** 1.485Gb/s

b) **SD-SDI(4:2:2):** 270Mb/s

(5) **Quantization bit rate:** 10 bits

(6) **Input/output impedance:** 75Ω

(7) **Return loss:** More than 15dB(~742.5MHz)
More than 10dB(742.25~1485MHz)

(8) **Transmission distance:**
Over 100m (5CFB, 1.485Gb/s)

Audio section (AV / AVD type)

Common specifications for embedded audio

(1) **Compatible embedded audio input formats**
SMPTE272M: 480i/59,94(4:2:2)
575i/50(4:2:2)
SMPTE299M: 1035i/60,59,94
1080i/60,59,94
1080i/50
1080p/24sF, 23.98sF
720p/60,59,94
720p/50

(2) **Format switching:** Auto switching

(3) **Sampling frequency:** 48kHz (Synchronized with video clock)

Analog audio output (AV type)

* Analog audio level 0dbs 0.775Vrms

(1) **Output terminal:**
XLR-5-32 type (Canon 5-pin male)

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

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

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

(5) Output impedance: 50Ω

(6) Min. Load impedance: 600Ω

(7) Quantization bit rate: 24 bits/ch

(8) Emphasis:
50/15μs digital emphasis
(Auto detection)

(9) Frequency response: 20~20KHz±1dB

(10)S/N ratio: More than 80dB

(11)Dynamic range: More than 80dB

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

(13)Harmonic distortion: Less than 0.1%
(Rated output)

AES/EBU output (AVD type)

* Digital audio level 0dBFS, full bit in full scale

(1) **Output connector:**
BNC (Paired channel) 4 lines

(2) **Output standards:**
AES/EBU standards (for monitor)

(3) **Output impedance:** 75Ω

2-2-3 SD-SDI input module (Option)

- **DK-801A** (4:2:2 digital component module)
  * Not supporting embedded audio

(1) **Input/output terminal:**
BNC 2 lines (Active loop through)
* The module can be preset to produce output signal corresponding to the channel selected on the monitor.

(2) **Input signal format:**
4:2:2 digital component signal (480i/59.94, 575i/50)

(3) **Input/output level:**
Rated level: 800mVp-p±10% (75Ω termination for output level)
Scrambled NRZI system

(4) **Transmission speed:** 270Mb/s

(5) **Quantization bit rate:** 10 bits

(6) **Input/output impedance:** 75Ω

(7) **Return loss:** More than 15dB

2-2-4 Decoder input module (Option)

- DE-801 NTSC 3-line comb decoder module
- DE-811 NTSC/PAL-B comb decoder module

(1) **Input/output terminal:** BNC 3 lines (Loop through)

(2) **Signal format:** DE-801 : NTSC composite signal
DE-811 : NTSC/PAL-B composite signal

(3) **Input level:**
VS:1.0Vp-p Positive polarity
V:0.7Vp-p Positive polarity

(4) **Input impedance:**
High impedance bridge connection or 75 termination (75Ω termination plug is optional.)

(5) **Return loss:** More than 46dB (10MHz)

2-2-5 Audio level meter module (Option)

- **DAM-504** 4ch Embedded audio level meter
- **DAM-508** 8ch Embedded audio level meter

* **DAM-504/508** requires DKM-511 *AV/*AVD.

(1) **Compatible embedded audio input formats**
SMPTE272M: 480i/59.94(4:2:2)
575i/50(4:2:2)
SMPTE299M: 1035i/60,59.94
1080i/60,59.94
1080i/50
1080p/24sF, 23.98sF
720p/60,59.94

(2) **Format switching:** Auto switching

(3) **Reference level:** -20dBFS

(4) **Number of channels:** DAM-504 : 4 channels
DAM-508 : 8 channels

(5) **Display segment:** 13 segments

(6) **Display device:** -∞~-25dB : Green LED
-20~0dB : Amber LED

2-3. Options

(1) **DKM-511A**
Equipped with a high-performance post-filter to make x/sin x corrections on the two-input module HDTV video signal of the Multi-SDI (HD-SDI/4:2:2).

(2) **DKM-511AAV/BAV**
Multi-format SDI module supporting embedded analog audio output

(3) **DKM-511AAVD/BAVD**
Multi-format SDI module supporting embedded AES/EBU audio output

(4) **DAM-504**
4-channel embedded audio level meter
(DKM-511* AV/AVD is required.)

(5) **DAM-508**
8-channel embedded audio level meter
(DKM-511* AV/AVD is required.)

(6) **DK-801A** 4:2:2 degital component module

(7) **DE-801** NTSC 3-line comb decoder module

(8) **DE-811** NTSC/PAL-B general-purpose decoder module

(9) **SRC-301Z**
Serial remote controller
By connecting various monitors by the loop-through method, up to 99 types of monitors can be remote-controlled.

(10) **RCT-30A** Infrared remote controller

(11) **ASP-100**
Auto setup probe (under development)
Used for automatic color temperature adjustment

(12) **EX-801A** Extender board for adjustment

(13) **MK-1905**
16:9 mask
16:9 mask easily detachable from HTM-1917R escutcheon

(14) **RS-2020/S**
19/20-inch rack mount adapter
RS-2020S has a sliding rail.

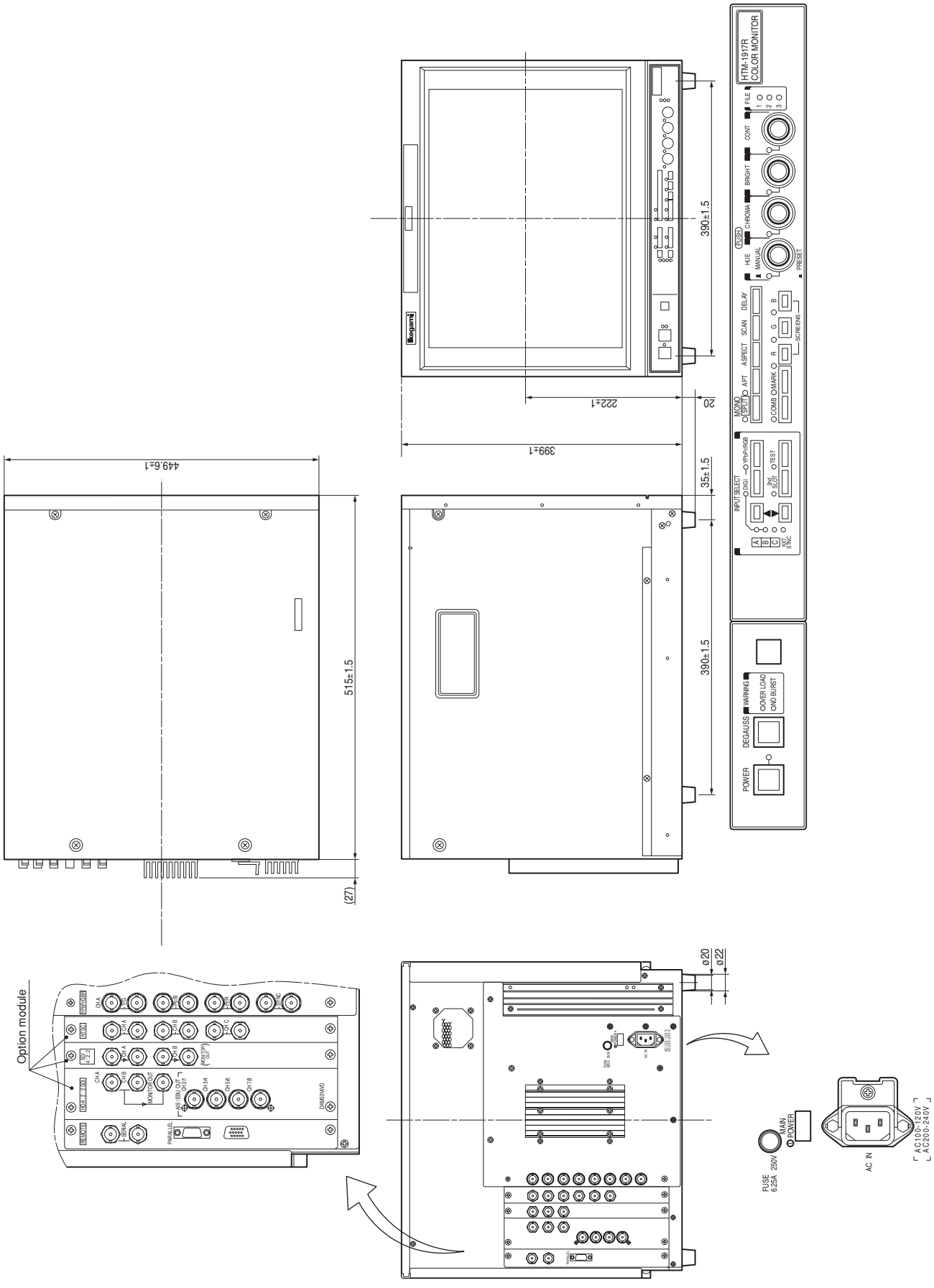
Table 2-3. All combinations of optional slots

Module	DKM-511※	DKM-511※AV	DKM-511※AVD	DK-801A	DE-801	DE-811	DCH-501
Slot width	1	2	2	1	1	1	1
No. of inputs	MultiI-SDI x2	Multi-SDI x2	Multi-SDI x2	4:2:2 x2	NTSC x3	NTSC/PAL-B x3	RGB/YPbPr x1 (1-input expansion)
No. of outputs	MultiI-SDI x1	Multi-SDI x1 Embe. Analog Audio x2ch	Multi-SD x1 Embe. AES/ EBU Audio x8ch	4:2:2 x2	NTSC x3	NTSC/PAL-B x3	RGB/YPbPr x1
Combination 1	●	—	—	●	●	●	—
Combination 2	●	—	—	●	●	—	●
Combination 3	●	—	—	●	—	●	●
Combination 4	●	—	—	●	●	—	—
Combination 5	—	● (Any one of them)		●	●	—	—
Combination 6	—	● (Any one of them)		●	—	●	—
Combination 7	—	● (Any one of them)		●	—	—	●
Combination 8	—	● (Any one of them)		—	●	●	—
Combination 9	—	● (Any one of them)		—	—	●	●
Combination 10	—	● (Any one of them)		—	●	—	●

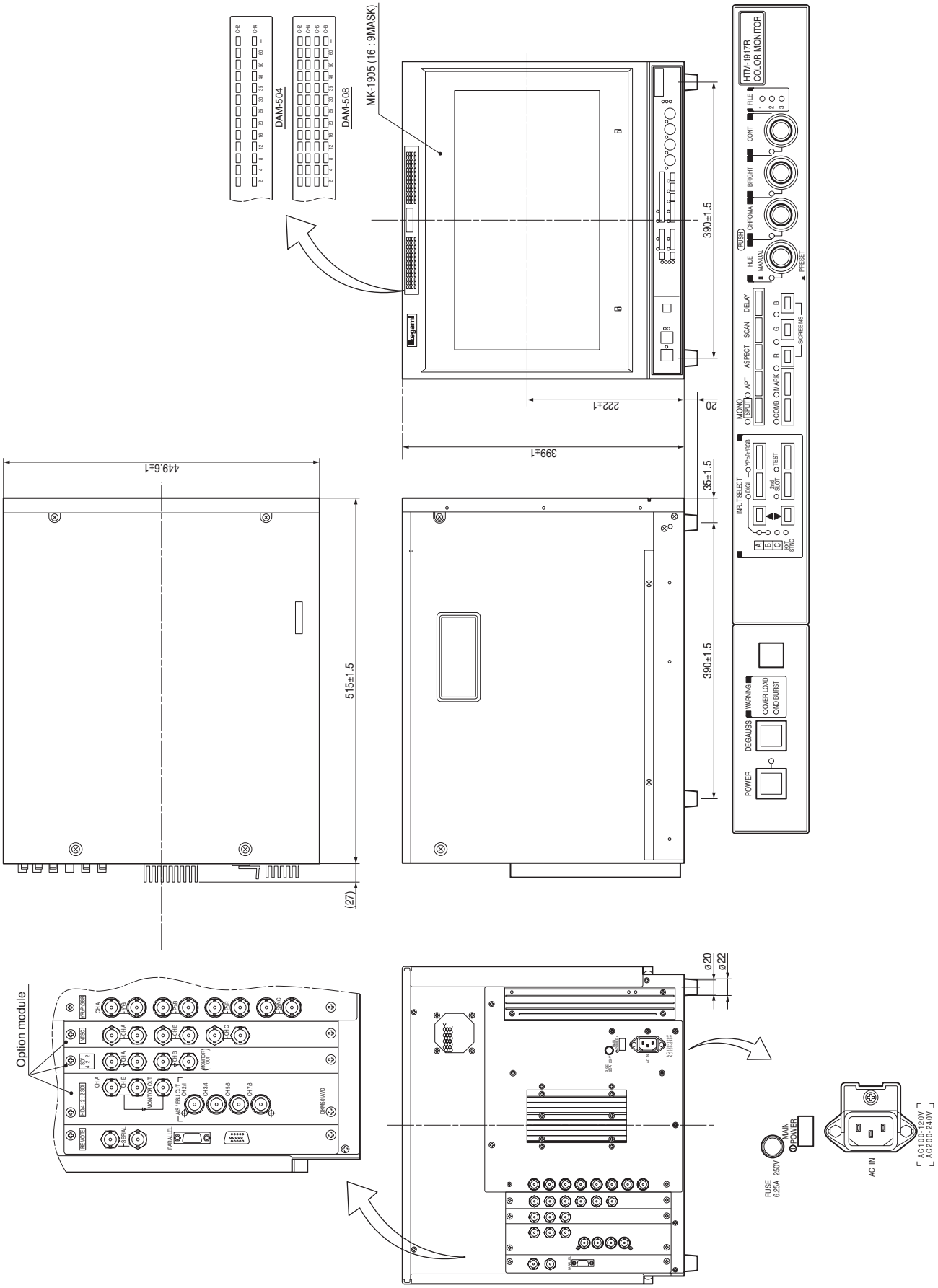
■ **Notes:**
① Two or more DKM modules cannot be installed together.
② Loading of DAM-504/508 is possible at the time of DKM-511*AV/*AVD type loading of combination 5-10.
③ DAM-504/508 is factory-optional.

2-4. External View

(1) **HTM-1917R**



(2) **HTM-1917R (with DAM-504/508)**

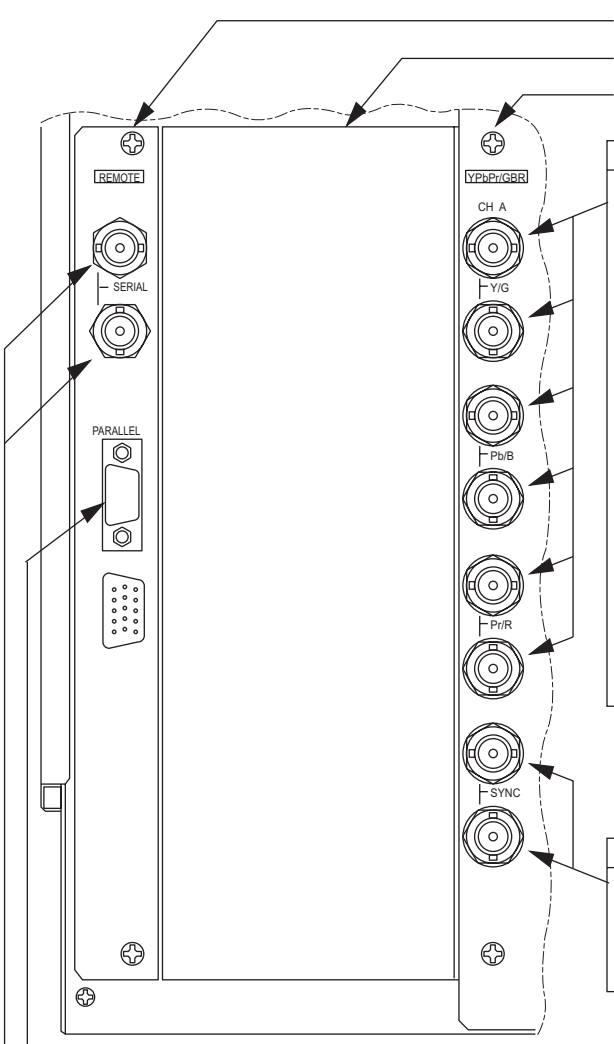


3. Installation

Caution: For your safety, turn off the power of each equipment before connection.

3-1. External connection

(1) **Standard module (MPU, VIDEO PROCESS)**



YPbPr/RGB A channel input

- Input here an RGB signal or YPbPr signal.
- Input formats
  - ① 480i/59.94
  - ② 575i/50
  - ③ 480p/59.94 (option)
  - ④ 1035i/59.94(60)
  - ⑤ 1080i/59.94(60)
  - ⑥ 1080i/50 (option)
  - ⑦ 1080p/24sF8(23.98sF) (option)
  - ⑧ 720p/59.94(60)
  - ⑨ 720p/50 (option)
- Signal format
  The signal format needs to be set at the MENU 1-2 HDTV/SDTV item. For 1080i or 1035i, the MENU 1-3 1035i/1080i item also needs to be set.
- Switch YPbPr/RGB at the MENU 1-4 item.
- If not adopting the loop through connection method, connect the terminated plug.

EXT SYNC signal input

- If inputting the YPbPr/RGB signal or component signal by external sync, input the external sync signal here.
- If not adopting the loop through connection method, connect the terminated plug.

PARALLE REMOTE signal input

- Connect the supplied remote connector here.
- For details of pin connection, refer to 3.2.

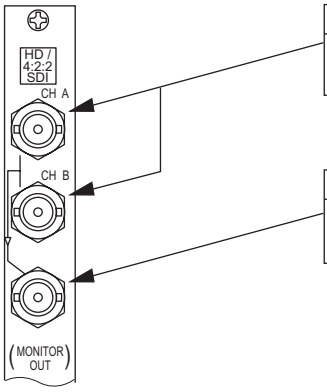
SERIAL REMOTE signal input

- Connect the BNC cable from the serial remote controller SRC-301Z here.
- By adopting the loop through connection method, up to 99 monitors can be controlled individually or together.
- If not adopting the loop through connection method, connect the terminated plug.
- Set the monitor ID in the MENU screen.

(2) **Multi-format SDI input module**

Preinstallment: DKM-511B ... Exchange to other DKM module is possible at the time of shipment.

DKM-511*



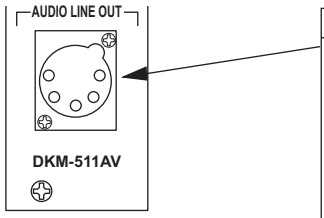
SDI A/B signal input

- Input the HDTV or SDTV (4:2:2) signal here.
- Input signal format is automatically identified to control the monitor.

SDI signal output

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

DKM-511*AV



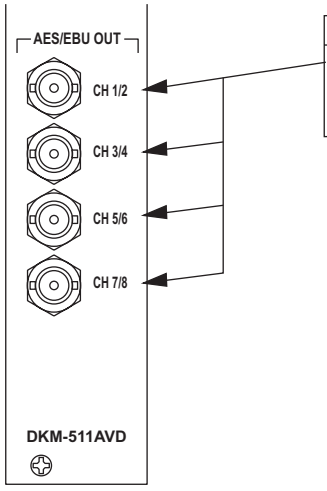
AUDIO LINE OUT

- Select one pair of channels out of four paired channels in the MENU, and output 2-channel analog audio signal from this connector.
- Use XLR-5-11C or equivalent as an output connector.
- Pin function

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

When active balanced system output is used in unbalanced state, connect the cold side to GND.

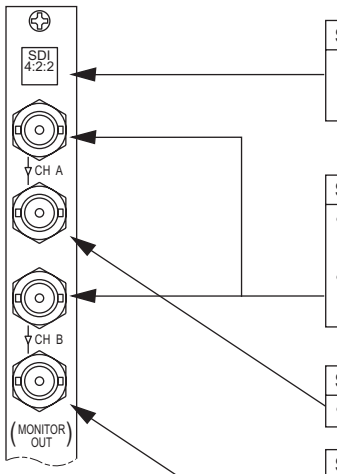
DKM-511*AVD



AES/EBU OUT

- Digital audio signals in AES/EBU format output.
  Consumer format (SPDIF) is not supported.
- Use a converter when connecting the equipment of 110Ω impedance.

(3) SD-SDI input module



SD-SDI module

SDI 4:2:2 4:2:2 digital component module (**DK-801A**)

SD-SDI A/B input

- Input the SD-SDI signal here according to the following module.
  DK-801A: 4:2:2 serial digital component signal
- When this module and multi SDI module are mounted together, this module will be assigned to the 2nd slot. To select the 2nd slot, press the 2nd slot switch.

SD-SDI A output

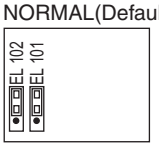
- The SD-SDI signal input to the A channel output here.

SD-SDI B output

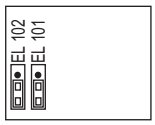
- The SD-SDI signal input to the B channel is output from here.
- The signal selected at the monitor can also be output from here by setting the connector inside the module.

<Setting Method>

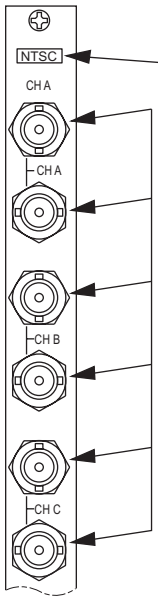
NORMAL(Default)



MONITOR OUT



(4) NTSC/PAL-B decoder input module



Decorder module

NTSC NTSC 3 line comb decorder module (**DE-801**)

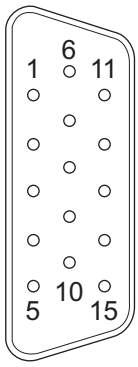
NTSC/PAL NTSC/PAL general-purpose decoder module (**DE-811**)

NTSC/PAL-B analog composite input

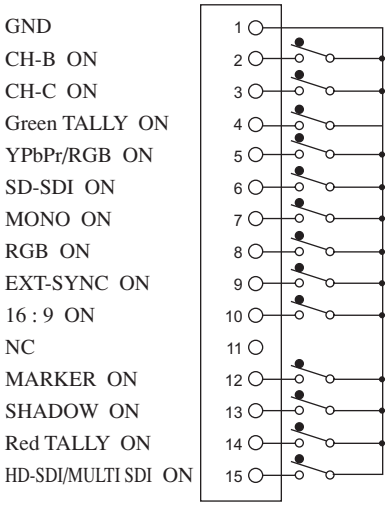
- Input NTSC/PAL-B analog composite signal here.
- If not adopting the loop through connection method, connect the terminated plug.
- When using in the external sync mode, input the external sync signal into the SYNC input connector of VIDEO PROCESS module described in the above (1) section.

3-2. Parallel Remote Connection

(1) **Pin function**



<Connector Face View on Rear Panel>



<Wiring of Remote Connector>

Pin No.	Function		External Assignment for Function
1	GND	ON	Connecting remote terminals to this pin enables ON control.
2	CH-B	ON	Connect to Pin 1 to select B channel. * When Pins 2 and 3 are both OPEN, the A channel will be selected.
3	CH-C	ON	Connect to Pin 1 to select C channel. * When Pins 2 and 3 are both OPEN, the A channel will be selected.
4	Green. TALLY	ON	Connect to Pin 1 to set G TALLY to ON.
5	YPbPr/RGB	ON	Connect to Pin 1 to select the component video (YPbPr/RGB) input. Use together with Pin 2 to switch between channels A and B. * When Pins 5, 6 and 15 are all OPEN with DE-801 mounted, the analog composite will be selected.
6	SD-SDI	ON	Connect to Pin 1 to select the digital video (SD-SDI) input. Use together with Pin 2 to switch between channels A and B. * When Pins 5, 6 and 15 are all OPEN with DE-801 mounted, the analog composite will be selected.
7	MONO	ON	Connect to Pin 1 to switch the COLOR/MONO setting to MONO.
8	RGB	ON	Connect to Pin 1 to switch the YPbPr/RGB setting to RGB.
9	EXT-SYNC	ON	Connect to Pin 1 to switch the analog input sync to external sync (EXT SYNC).
10	16:9	ON	Connect to Pin 1 to switch the aspect (4:3/16:9) setting to 16:9. When the aspect is set to 4:3 for HDTV signal, [HD4:3 SCAN] mode is entered. If the setting is to be controlled simultaneously with channel switching, set [CHANGE ASPE] to [MANUAL] in MENU 2-4.
11	N.C		No connection
12	MARKER	ON	Connect to Pin 1 to set 4:3 MARKER to ON.
13	SHADOW	ON	Connect to Pin 1 to set SHADOW to ON.
14	Red TALLY	ON	Connect to Pin 1 to set Red TALLY to ON.
15	HD-SDI/Multi SDI	ON	Connect to Pin 1 to select the HD-SDI or Multi-SDI input module. Use together with Pin 2 to switch between channels A and B. * When Pins 5, 6 and 15 are all OPEN with DE-801 mounted, the analog composite will be selected.

(2) **Connectors used (Standard accessories)**

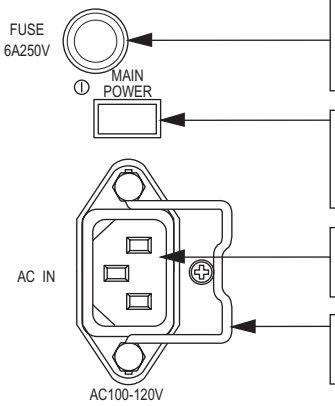
D-sub 15-pin (male) mini type

・Connector: **HDB-15M (3011-15)** Made by Japan Aviation Electronics Industry (or equivalent)

・Case: **DE-C-J9-F2-1R** Made by Japan Aviation Electronics Industry

4. User Adjustment

4-1. Power Supply



① FUSE
Fuse for preventing over-current.
When the fuse is blown, replace it with a rated 6A (250V) slow-blow fuse after eliminating the cause.

② MAIN POWER switch
To operate the monitor, turn ON this MAIN POWER switch as well as the POWER switch on the front panel.

③ AC power input
Insert the provided AC cable here to supply AC power.

④ Lock
After inserting the AC plug, lock the AC plug with this lock to prevent it from disconnecting.

Fig. 4-1.
POWER Section on Rear Panel

4-2. Names and Functions of Front Left Panel Parts

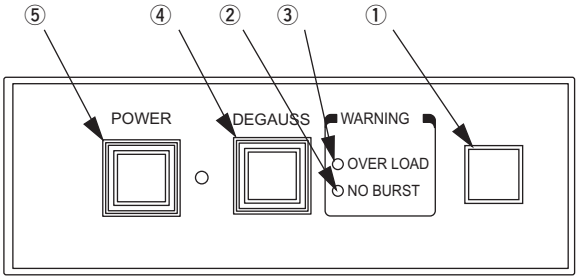


Fig. 4-2 Front Left Panel

① Infrared sensor
Infrared sensor for the optional wireless remote controller RCT-30A.

② NO BURST LED
LED which operates only when the composite signal input is selected.
The LED lights up when the selected composite signal has no burst (black and white signal) or when the color killer circuit is activated.

③ OVERLOAD LED
This LED lights up when the ABL circuit is activated (the luminance is higher than necessary).
Using the monitor in a way which causes this LED to light up continuously for a long time will deteriorate the CRT. Therefore use the monitor with the luminance lowered.

④ DEGAUSS switch
When the power is turned ON, CRT demagnetization will be performed automatically. This switch allows demagnetization to be performed at one-touch.
As pressing this switch continuously has no effect, release and press again 2 to 3 minutes later.

⑤ POWER switch, LED
Switch for turning the monitor power ON/OFF. The LED is ON when the power is turned ON.
Always turn ON the MAIN POWER switch on the rear panel when starting the monitor.
Normally turn ON/OFF using this switch.

4-3. Names and Functions of Front Controller Parts

(1) **Names and functions of front panel parts**

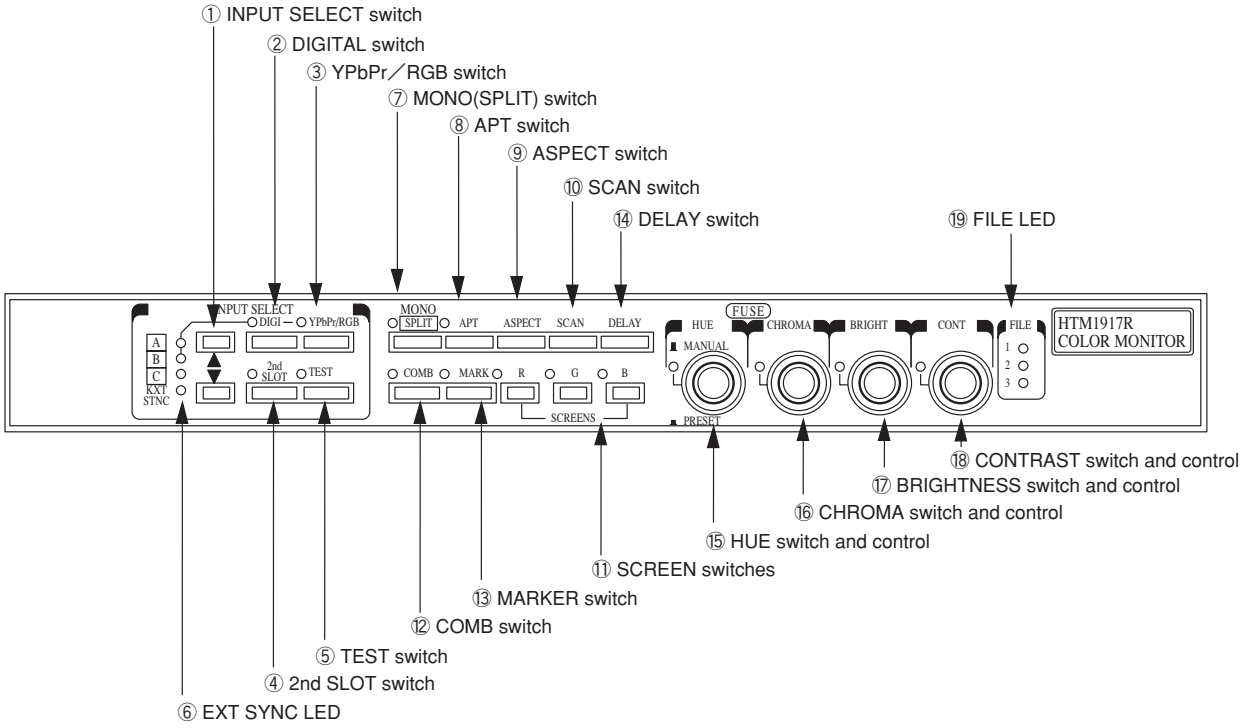


Fig. 4-3-1. Front Panel

Meaning of abbreviations in the following description
• SDTV: 480i, 575i
• HDTV: 1035i, 1080i, 720p
• SD-SDI: SDTV(525i,625i)SDI
• HD-SDI: HDTV(1035i,1080i,720p)SDI

① **INPUT SELECT** switch

- Use the ▼ and ∂ switches to switch the input channels A/B/C of each module. With the module having only one input channel (**DKH-511**), this switch is inoperative.
- As the SYNC INT/EXT setting is memorized by channel (A, B, C, YPbPr/RGB-A or YPbPr/RGB-B) for analog inputs, it is switched automatically together with the channel switching.
- As the ASPECT 4:3/16:9 setting is memorized by channel (A, B, C, YPbPr/RGB-A, YPbPr/RGB-B, SDI-A or SDI-B) irrespective of the format, it is switched automatically together with the channel switching.

② **DIGITAL** switch

- Set to ON when selecting the MULTI-SDI, HD-SDI or SD-SDI module.
- The switching method differs as follows according to the mounting state of the SDI module.

a) When only one SDI module is mounted.
Set the DIGITAL switch to ON.

b) When two SDI modules are mounted.
MULTI-SDI or HD-SDI can be selected only with the DIGITAL switch. To select SD-SDI, set the 2nd SLOT switch to ON as well.

- As the ASPECT 4:3/16:9 setting is memorized by channel irrespective of the format, it is switched automatically together with the channel switching.

③ **YPbPr/RGB** switch

- Set to ON when selecting the YPbPr/RGB input.
- Switch between YPbPr and RGB at the MENU 1-4 item.
- As the SYNC INT/EXT setting is memorized by channel (A or B) for YPbPr/RGB, it is switched automatically together with this switch. Two channel (A or B) is option.
- As the ASPECT 4:3/16:9 setting is memorized by channel irrespective of the format, it is switched automatically together with the channel switching.

④ **2nd SLOT** switch

- When there are two SDI modules (e.g. **DKM-511**+**DK801A**) or two decoder modules (e.g. **DE-801**+**DE-811**), switch to the second slot using the 2nd SLOT switch.

a) For SDI module
The SD-SDI is assigned to the 2nd SLOT.

b) For decoder module
The **DE-811** is assigned to the 2nd SLOT.

⑤ **TEST** switch

- Turn ON to switch to the internal TEST signal.
- The following standard TEST signal formats are provided.
  Switch the format at the MENU 1-5 item.
  480i (525i) /59.94
  575i (625i) /50
  480p/59.94(Only when supported by the monitor)
  1035i/60
  1080i/60
  1080i/50(Only when supported by the monitor)
  1080p/24sF (1080i/48) (Only when supported by the monitor)
  720p/60

* The description in parentheses appears on the MENU.

- As the ASPECT 4:3/16:9 setting is memorized irrespective of the format, it is switched automatically when the new setting is done.
- Every time the switch is pressed, the output will cycle over the following five types of signals.

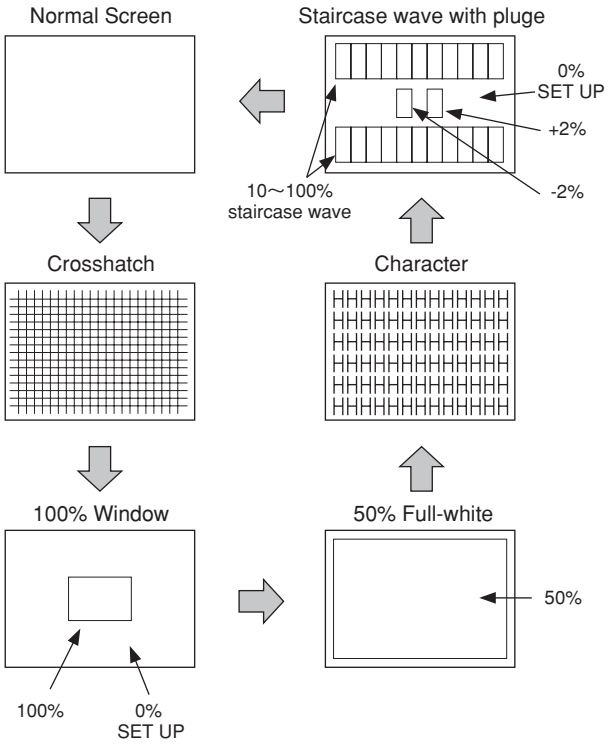


Fig. 4-3-2. TEST Signal

⑥ **EXT SYNC** LED

- The LED lights up when SYNC INT/EXT is switched to EXT.

⑦ **MONO (SPLIT)** Switch

- Set the MONO switch to ON when the color signal is to be viewed in the black/white state.
- When the MONO switch is ON, turn ON the FORCED switch in the drawer panel to enter the wide band MONO mode.

<Wide Band MONO Mode>

When the NTSC composite signal (DE801 module) is selected, the luminance signal will be subjected to either the COMB or TRAP filter processing in the normal MONO mode. In the case of wide band MONO mode, the luminance signal will have full flat frequency response not subjected to either filter processing.

- **COLOR/MONO SPLIT**
  When the MONO switch is pressed for 2 to 3 seconds, the split screen (upper half of the screen is color, while the lower half is black/white) mode will be set.

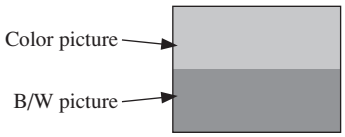


Fig. 4-3-3. COLOR/MONO SPLIT ON State

⑧ **APT** switch

- Turn ON the APT switch when correcting aperture.
- The aperture function does not work for YPbPr/RGB input SDTV format signal and SD-SDI 4:2:2 format signal.

⑨ **ASPECT** switch

- Aspect ratio is switched between 4:3 and 16:9.
- In the HDTV signal mode for 16:9 image, the 4:3 area image is displayed with enlargement.
- When [CHANGE ASPE] is set to [AUTO] in MENU 2-4, the aspect settings are memorized in the following seven input channels and there is no need to repeat the setting every time the input channel or signal format is changed. The setting is switched automatically together with the channel switching. In the case of the Multi-format SDI input, the aspect ratio data is memorized in each input signal (HD-SDI or SD-SDI) respectively. When HD-SDI (16:9) signal input at the channel A is replaced by SD-SDI signal, for example, the aspect ratio is automatically switched to the one previously set for that SD-SDI signal. To fix the aspect ratio setting, set [CHANGE ASPE] to [MANUAL].

<Channels for Memory>

VBS input ch A / B / C
2'nd VBS input ch A / B / C
YPbPr/RGB inputs ch/A/B
Multi SDI inputs ch/A/B
(memorized in SD/HD-SDI respectively)
2nd SDI inputs ch/A/B

Example: By setting the channel A to 4:3 and the channel B to 16:9 once, the ASPECT will be switched automatically each time the channel A/B is switched.

⑩ **SCAN** switch

- Use the SCAN switch to switch between normal scan and under-scan.

⑪ **SCREEN** switch

- When displaying the individual R, G, B screen colors, turn ON the respective SCREEN switches for R, G and B. When the switches are all ON, the LEDs are all OFF.

⑫ **COMB** switch

(Only when DE-801/DE-811 [option] is mounted)

- To operate the comb filter circuit, turn ON the COMB switch. To operate the trap filter circuit, turn it off.
- Operation is enabled during the NTSC composite signal input.

⑬ **MARKER** switch

- Turn ON the MARKER switch to display the various markers.
- The markers are switched in the order shown in Fig. 4-5 by pressing this switch continuously. Finally set it to OFF. By pressing it for 2 to 3 seconds before turning it OFF, it can be turned OFF.
- This switch also functions as the 4:3/13:9/14:9 shadow switch.
- Marker phase can be changed with [MK. PHASE] in the drawer panel.

⑭ **DELAY** switch

- By pressing this switch, the horizontal/vertical blanking can be monitored. Every time the switch is pressed, the mode cycles as follows.

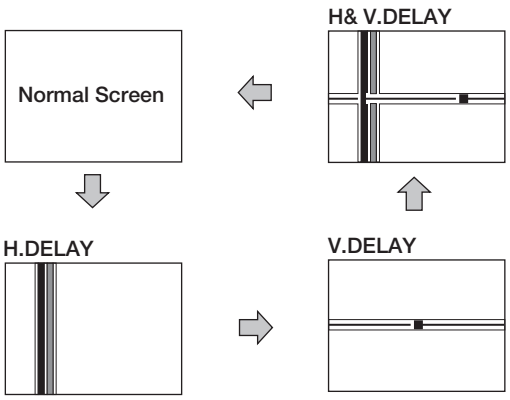


Fig. 4-3-4. DELAY Mode

⑮ **HUE** manual control

- This control serves as a MANUAL/PRESET data selection switch as well as a manual data variable control.

  The control pops out and is switched to the MANUAL state with each press (the LED lights).
- By rotating the control in this state, the manual data can be varied.
- HUE operates only for the NTSC composite signal.

⑯ **CHROMA** manual control

- This control serves as a MANUAL/PRESET data selection switch as well as a manual data variable control.

The control pops out and is switched to the MANUAL state with each press (the LED lights).

- By rotating the control in this state, the manual data can be varied.

⑰ **BRIGHTNESS** manual control

- This control serves as a MANUAL/PRESET data selection switch as well as a manual data variable control.

  The control pops out and is switched to the MANUAL state with each press (the LED lights).
- By rotating the control in this state, the manual data can be varied.

⑱ **CONTRAST** manual control

- This control serves as a MANUAL/PRESET data selection switch as well as a manual data variable control.

  The control pops out and is switched to the MANUAL state with each press (the LED lights).
- By rotating the control in this state, the manual data can be varied.

⑲ **FILE** LED

- The LED indicates the file selection status with FILE 1 to FILE 3 switches in the drawer panel. When no file is selected, the status is in REFERENCE.
- Default color temperature settings for FILE 1 to FILE 3 are as follows.

  [Default Color Temperature Setting for Each File]
  - Reference: 6500k
  - File1: 6500k
  - File2: 9300k
  - File3: 6500k

(2) **Names and Functions of Drawer Panel Controls**

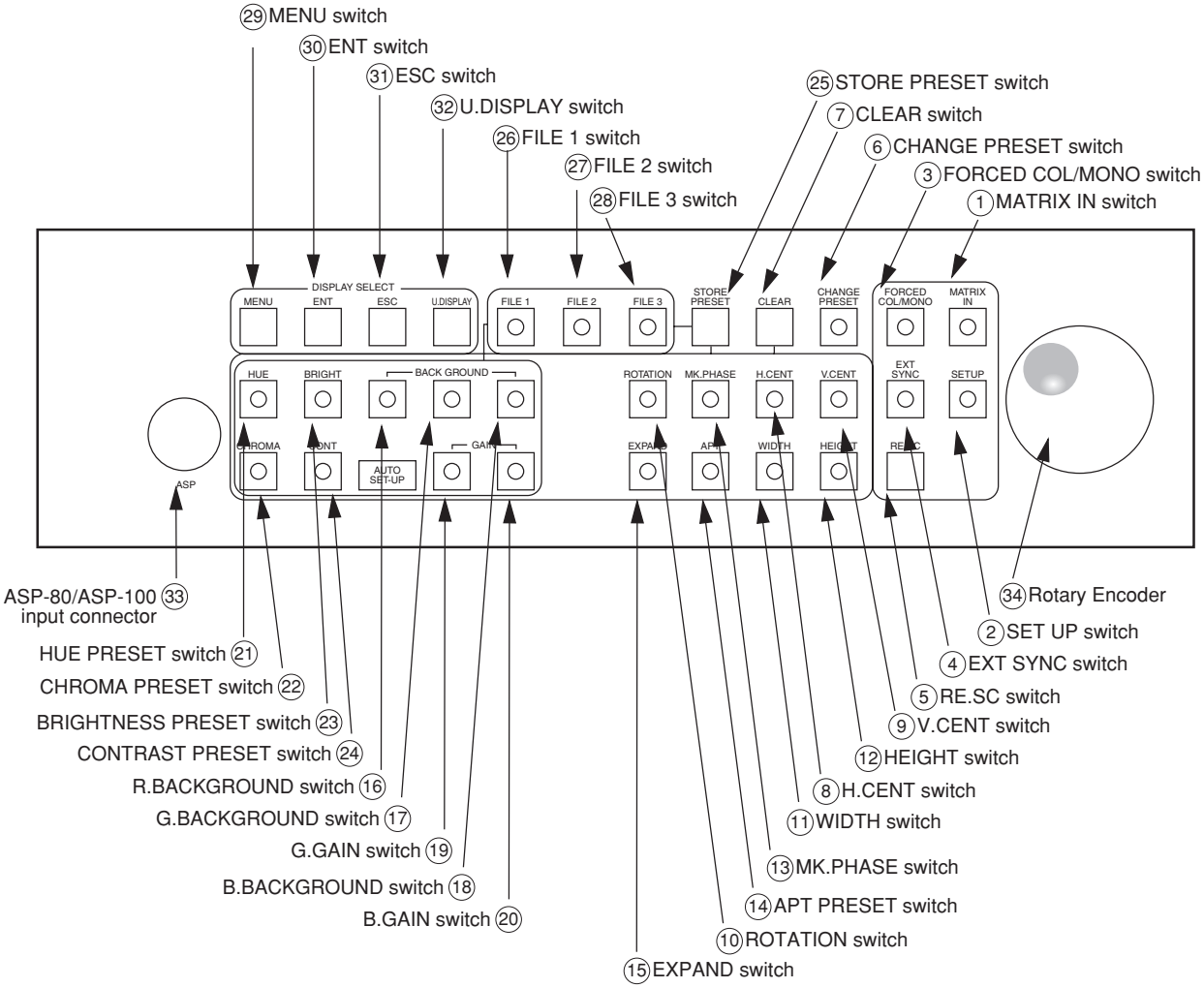


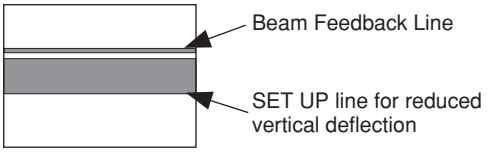
Fig. 4-3-5. Drawer Panel Controls

① **MTRIX** switch

- Switch for changing the matrix ratio of the luminance signal and chrominance signal.
- When the LED is ON, the regular matrix close to the one in home television is used.

② **SET UP** switch

- When set to ON (SET UP side/ LED is ON), the vertical deflection is reduced, facilitating adjustments of the black balance (R/G/B BACK GROUND).



③ **FORCED COL/MONO** switch

(Functions only when the NTSC decoder is mounted)

- The function of this switch differs as follows according to the state of the MONO switch on the front panel. This switch functions only when composite signals are input.

FORCED COL/MONO SWITCH	MONO SWITCH	Function
OFF	OFF	**<AUTO COLOR>** Switches the COLOR/MONO circuit operation of the decoder automatically according to whether burst is added to the composite signal.
ON	OFF	**<FORCED COLOR>** The COLOR circuit is operated forcibly regardless of whether burst is added to the composite signal.
OFF	ON	**<NORMAL MONO>** Normal MONO state. In the case of the composite signal, either the COMB or TRAP filter circuit operates according to the state of the COMB switch for composite signals.
ON	ON	**<WIDE BAND MONO>** Neither the COMB nor TRAP filter circuit operates in the MONO state. Frequency characteristics of the luminance signal are in the full-flat state.

④ **EXT SYNC** switch

- Set this switch to EXT when externally synchronizing the analog input signal. The switch does not function when digital signals are input.

⑤ **RE.SC** switch

(Functions only when the NTSC decoder is mounted)

- Use the RESIDUAL SUBICULAR ON/OFF switch to check if the subicular is leaking to the signal input.
- Press this switch while observing the screen. If the phase (HUE) changes, it means that the subicular is leaking into the feedback line area.
  Releasing the switch automatically sets it to OFF.

⑥ **CHANGE PRESET** switch

- Press this switch to change or memorize the PRESET data.
- When pressed, all the PRESET LEDs in the frame start to blink. Select a blinking PRESET switch. When the LED stops blinking and stays lit on, the data can be changed using the rotary encoder.
  Press another PRESET switch to change another data.
- Each PRESET data has the following individual data.

PRESET	FILE	FORMAT	SCAN	データ数
HUE	●	×	×	4
CHROMA	●	×	×	4
BRIGHT	●	×	×	4
CONT	●	×	×	4
G, B GAIN	●	×	×	4
R, G, B BKG	●	×	×	4
HEIGHT	×	●	●	17
WIDTH	×	●	●	17
H. CENT	×	●	●*1	8
V. CENT	×	●	×	5
MK. PHASE	×	●	×	5
TRAPEZOID	×	●	●*1	8
SIDE PIN	×	●	●*1	8
MOIRE	×	●	●	17
ROTATION	×	×	×	1
APT	×	×	×	1

FILE : REFERENCE, FILE 1, FILE 2, FILE 3
FORMAT : 480i, 575i, 1035i, 1080i, 720p
SCAN : SDTV - 4:3 normal, 4:3 under, 16:9 normal, 16:9 under
HDTV - HD 4:3 SCAN, 16:9 normal, 16:9 under
SCAN*1 : HDTV - HD 4:3 SCAN, 16:9

* When changing the PRESET data, do not switch the SCAN and the channels.

* Activate the following PRESET switches by enabling their functions.

a) **APT PRESET** switch
Set the APT switch on the front panel to ON.

b) **HUE PRESET** switch
When the HUE MANUAL switch on the front panel is ON, set it to PRESET. The switch is enabled only when the NTSC composite signal is selected.

c) **CHROMA PRESET** switch
When the CHROMA MANUAL switch on the front panel is ON, set it to PRESET.

d) **BRGHITNESS PRESET** switch
When the BRIGHT MANUAL switch on the front panel is ON, set it to PRESET.

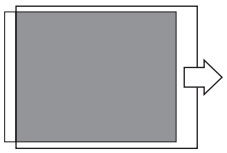
e) **CONTRAST PRESET** switch
When the CONT MANUAL switch on the front panel is ON, set it to PRESET.

⑦ **CLEAR** switch

- Press this switch to select the item you want to change or clear the data in the PRESET screen displayed by operating the CHANGE PRESET switch and the CLEAR switch.
- While changing any preset data, press this switch to clear the new data and restore the previous one.

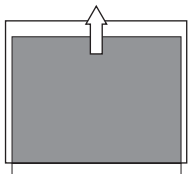
⑧ **H. CENT** switch

- Switch for adjusting the horizontal position of the active screen.



⑨ **V. CENT** switch

- Switch for adjusting the vertical position of the active screen.

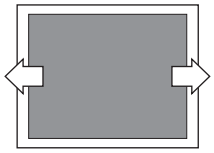


⑩ **ROTATION** switch

- Switch for correcting deviation of PURITY due to geomagnetic effects when the monitor orientation is changed. Set the screen to one color using the SCREEN switch and adjust so that the entire screen becomes one even color.
- In the application where the monitor is rotated constantly such as on OB van, set the EL bit connector (EL561) on the DEF board to OFF to deactivate the ROTATION circuit.
  This connector is set to ON as factory setting.

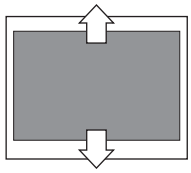
⑪ **WIDTH** switch

- Switch for adjusting the width of the active screen by scan size and aspect.



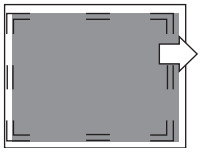
⑫ **HEIGHT** switch

- Switch for adjusting the height of the active screen by scan size and aspect.



⑬ **MK. PHAZE** switch

- Switch for adjusting the horizontal phase of the marker.
- Display the 100% marker and adjust so that the image fits inside the 100% frame.



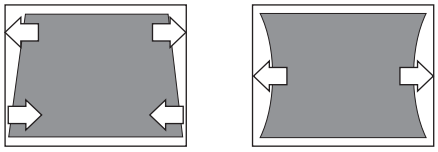
⑭ **APT** switch

- Switch for adjusting the aperture.
- This switch will not function unless the APT switch on the front panel is set to ON (LED is ON).

⑮ **EXPAND** switch

- Switch for adjusting the SIDE PIN, TRAPEZOID and MOIRE.
- Each time the switch is pressed, TRAPEZOID, SIDE PIN and MOIRE alternates.

(TRAPEZOID) (SIDE PIN)



- Moiré pattern, an interference pattern created by scanning lines and CRT mask pitch, can be corrected.

⑯ **R. BACKGROUND** switch

- Switch for adjusting the low light balance (red component).
- For details of the adjustment, refer to 4-6 (3).

⑰ **G. BACKGROUND** switch

- Switch for adjusting the low light balance (green component).
- For details of the adjustment, refer to 4-6 (3).

⑱ **R. BACKGROUND** switch

- Switch for adjusting the low light balance (blue component).
- For details of the adjustment, refer to 4-6 (3).

⑲ **G. GAIN** switch

- Switch for adjusting the high light white balance (green component).
- For details of the adjustment, refer to 4-6 (3).

⑳ **B. GAIN** switch

- Switch for adjusting the high light white balance (green component).
- For details of the adjustment, refer to 4-6 (3).

㉑ **HUE** switch

- Switch for adjusting the HUE PRESET data.
- This circuit operates only when the NTSC decoder module **DE-801** is mounted and the analog/digital (D2) NTSC composite signal input is selected.
- For details of the adjustment, refer to 4.6 (4).

㉒ **CHROMA** switch

- Switch for adjusting the CHROMA PRESET data.
- For details of the adjustment, refer to 4.6 (4).

㉓ **BRIGHT** switch

- Switch for adjusting the BRIGHTNESS PRESET data.
- This circuit does not operate in the DELAY state.
- For details of the adjustment, refer to 4.6 (1).

㉔ **CONT** switch

- Switch for adjusting the CONTRAST PRESET data.
- For details of the adjustment, refer to 4.6 (2).

㉕ **STORE FILE** switch

- Switch for copying the currently displayed color temperature data to FILE 1 to FILE 3.
- FILE 1 to FILE 3 blink when the switch is pressed. Press the desired destination FILE switch. The FILE LED lights up and the data is copied to the FILE.
- The PRESET data to be stored includes the following nine data shown in the white frames on the panel.

  HUE, CHROMA, BRIGHT, CONT,
  R.BKG, G.BKG, B.BKG, G.GAIN, B.GAIN

㉖ **FILE 1** switch

- Set this switch to ON to output or store data in FILE 1.

㉗ **FILE 2** switch

- Set this switch to ON to output or store data in FILE 2.

㉘ **FILE 3** switch

- Set this switch to ON to output or store data in FILE 3.

㉙ **MENU** switch

- Switch to call various menus.

㉚ **ENT** switch

- Switch to execute MENU operations.

㉛ **ESC** switch

- Switch to exit MENU.

㉜ **U. DISPLAY** switch

- Not available in this version.

㉝ **ASP-80** or **ASP-100** input connector

- Used for connecting the auto setup probe ASP-80 [option (discontinued)] or ASP-100 [option].

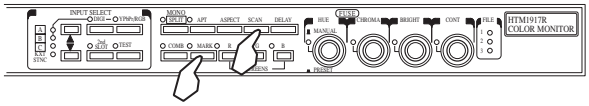
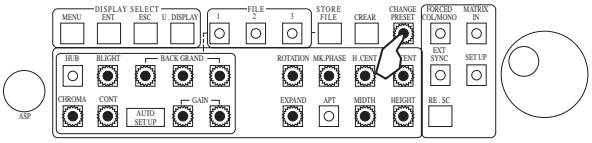
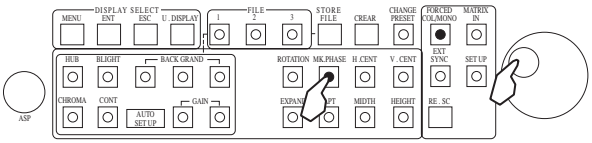
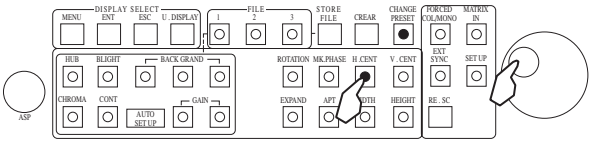
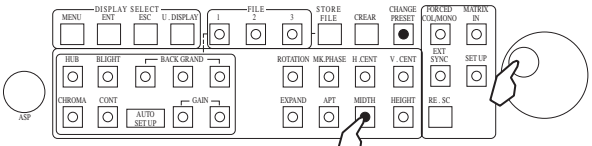
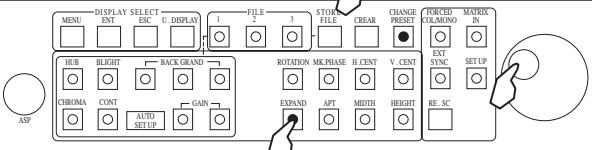
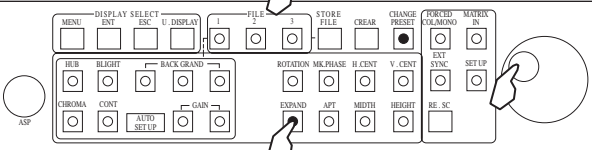
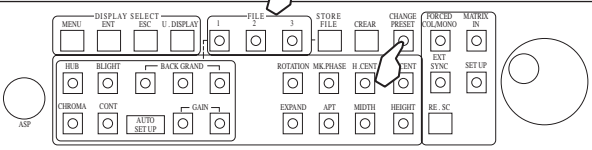
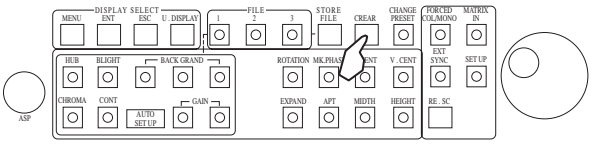
㉞ **ROTARY ENCORDER**

- Used for changing the PRESET data in the drawer panel and selecting items in the MENU mode.

4-4. Storing and Changing Data in the Memory

(1) Storing and changing the PRESET data

<Example 1> Changing the MK.PHASE, H.CENT, V.CENT, WIDTH, HEIGHT, TRAPEZOID and SIDE PIN.

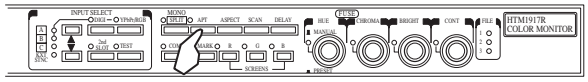
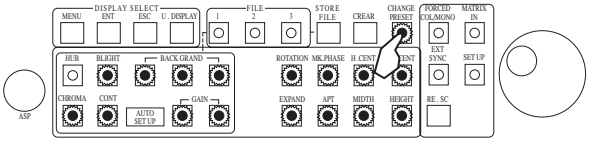
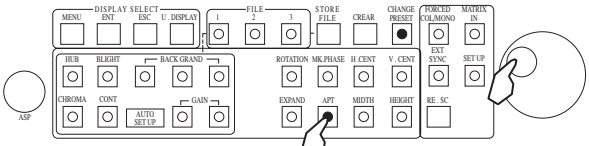
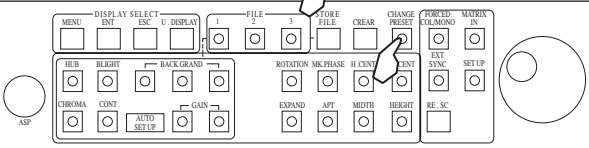
1		Set the SCAN size to the UNDER SCAN mode using the **SCAN** switch, and display the 10-division crosshatch marker using the MARKER switch.
2		Press the **CHANGE PRESET** switch, and each PRESET switch starts to blink.
3		**<Changing the screen phase>** Set the **MK.PHASE** switch to ON. Change the phase using the encoder so that the screen fits inside the marker frame.
4		**<Changing the centering>** Set the **H.CENT** switch to ON, and move the horizontal position of the screen to the center using the encoder. Use the **V.CENT** switch for vertical direction.
5		**<Changing the size>** Set the **WIDTH** switch to ON, and change the amplitude size of the screen using the encoder. Use the **HEIGHT** switch to change the screen height.
6		**<Changing the trapezoid distortion>** Set the **EXPAND** switch to ON and change the trapezoid distortion using the encoder.
7		**<Changing the side pin>** Set the **EXPAND** switch to ON again. The SIDE PIN mode is set. Change the side pin using the encoder.
8		**<Storing data>** After changing the data, press the **CHANGE PRESET** switch to store the new data.
9		**<Clearing data>** Before storing the above data, pressing the **CLEAR** switch will clear all changes and restores the previous data.

Note

The H.PHASE, H.CENT, V.CENT, WIDTH, HEIGHT, TRAPEZOID, SIDE PIN and MOIRE data are stored as separate data items for each signal format, scan size or aspect ratio. If the following switches are operated during data change, the changed data will be cleared. Store the data before changing the channel, scan size, aspect ratio or input signal format.

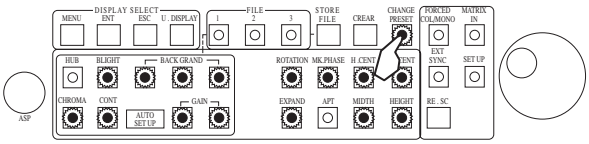
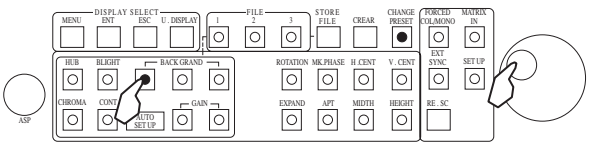
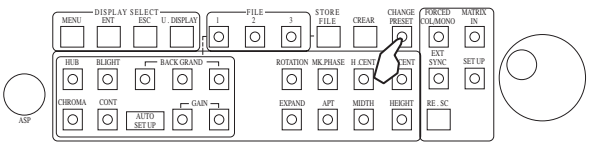
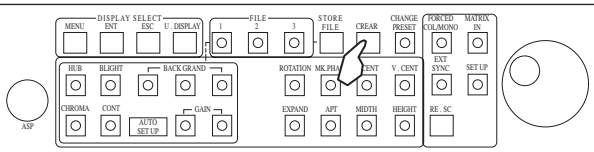
■ **INPUT SELECT** switch ■ **SCAN** switch ■ **ASPECT** switch

<Example 1> Changing APT

1		Set the **APT** switch to ON.
2		Press the **CHANGE PRESET** switch, and each **PRESET** switch starts to blink.
3		Set the **APT PRESET** switch to ON, and change the aperture correction amount.
4		**<Storing data>** After changing the data, press the **CHANGE PRESET** switch to store the new data. Pressing the **CLEAR** switch before storing the data will restore the previous data.

(2) Changing and storing the FILE DATA

<Example 1> Copying the REFERENCE (FILE OFF state) data to FILE 3 and changing the color temperature.

1		**<Storing FILE>** Press the **STORE FILE** switch. FILE 1 to FILE 3 switches blink.
2		Press the **FILE 3** switch. The current FILE DATA is copied to the FILE 3.
3		Press the **CHANGE PRESET** switch. Each PRESET switch starts to blink.
4		Set the **R.BACKGROUND** switch to ON and change the data using the encoder.
5		**<Storing data>** After changing the data, press the **CHANGE PRESET** switch to store the new data.
6		**<Clearing data>** Before storing the above data, pressing the **CLEAR** switch will clear all changes and restore the previous data.

4-5. Types of Markers

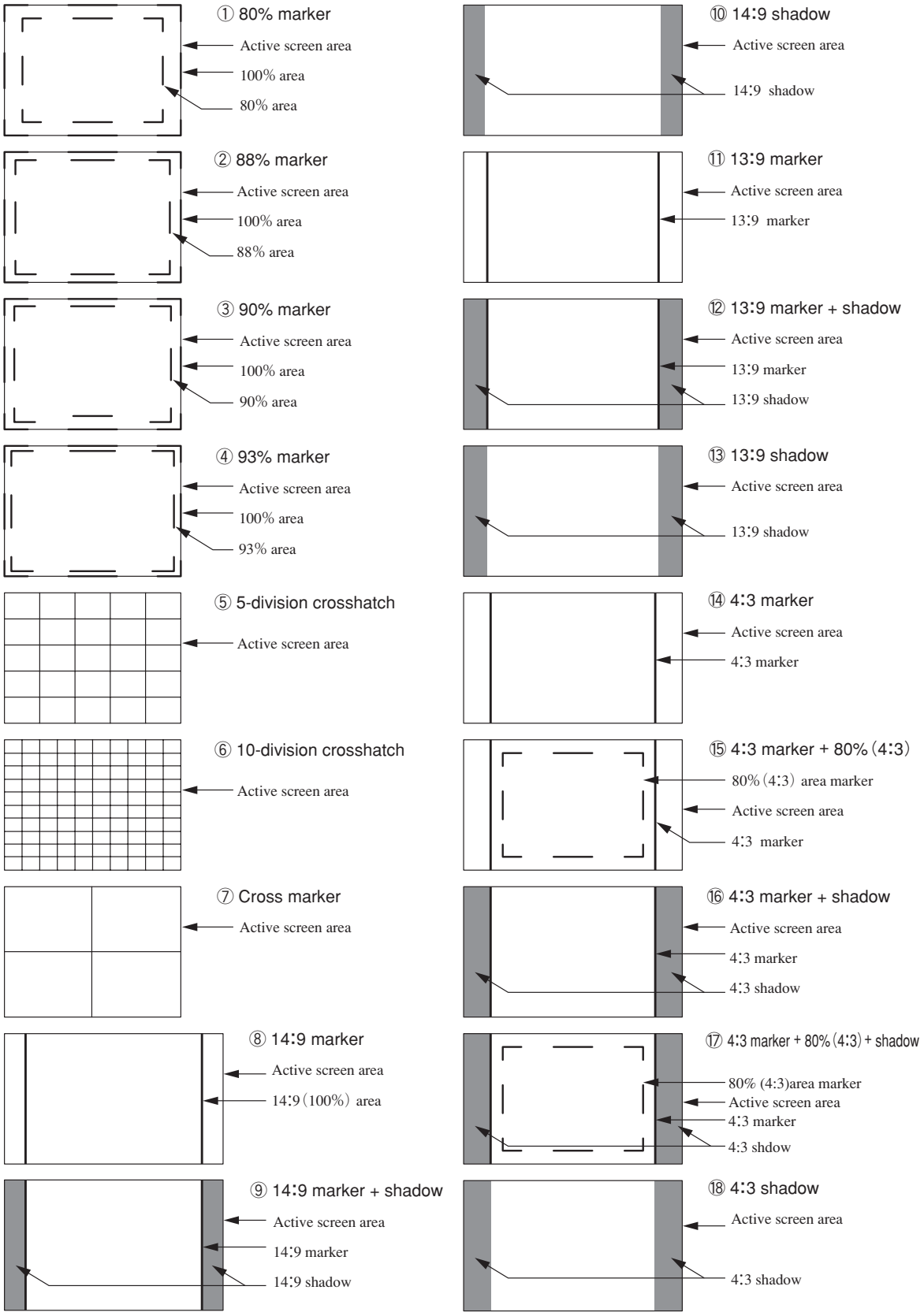


Fig. 4-5. Types of Marker

4-6. Adjustment Procedure

<Before starting>
- The following adjustments will be more precise if you dim the monitoring environment.

(1)Adjusting the brightness

a) **Brightness**

Brightness adjustment is to set the appropriate black level.

It must be adjusted according to the brightness of the environment in which the monitor is used so that the black level is not too high or too low.

b) **Adjustment procedure**

① **Input signal**

Select the gray scale with pluge using the internal TEST signal.

② **Adjusting BRIGHTNESS**

While taking note of the pluge portion at the center of the signal, decrease BRIGHTNESS gradually until the brightness of Part A (–2%) and Part B (0%) in the figure cannot be visually differentiated.

Also check that Part C (+2%) is illuminated slightly. If this cannot be confirmed, it means that the black level has been decreased excessively.

Raise BRIGHTNESS until Part C illuminates slightly.

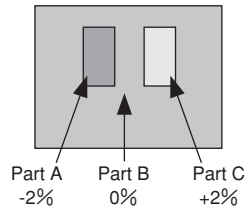


Fig. 4-6-1. Pluge Portion

(2)Adjusting the contrast

a) **Contrast**

Contrast of the monitor is factory-adjusted to the level optimum for monitoring images.

b) **Precautions**

Leaving the monitor in the bright state (where the OVER LOAD LED is lit) for a long period of time will shorten the life of the CRT. Therefore adjust the PRESET data to the value shown below.

c) **Adjustment procedure**

① **Input signal**

Input a window signal (100%) or select the internal TEST signal (window signal).

② Measure the luminance value of the window using a luminance meter, and adjust the contrast to 120nit(cd/m^2) or 35fL.

(3) Adjusting the white balance

a) **White balance**

The monitor has four files to store white balance data. The four files are set to the following color temperatures as default.

● REFERENCE	:	6500ºC
● FILE 1	:	6500ºC
● FILE 2	:	9300ºC
● FILE 3	:	6500ºC

* The white balance can be adjusted using an analyzer or the optional ASP-80 (discontinued)/100 for automatic adjustment.

* Use the FILE 3 when you want to store custom-adjusted color temperature data.

b) **Precautions**

To stabilize the black level over a long period of time, this monitor adopts the beam feedback clamp method which detects beam currents to perform clamping. Therefore one line (Part A in Fig. 4-6-2) is displayed on the CRT.

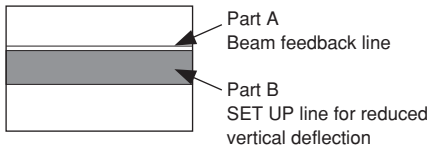


Fig. 4-6-2. SETUP ON State

If the BACKGROUND is lowered so that Part B in Fig. 4-6-2 becomes invisible, the line at Part A disappears, disabling the detection of the beam current.

Pay careful attention when adjusting BACKGROUND.

c) **Adjustment procedure 1 (Adjusting visually)**

①**Input signal**

Input a color bar signal or select the internal TEST signal (gray scale with pluge).

② **Setting the file**

Select the file whose white balance you want to change.

Adjust BRIGHTNESS and CONTRAST properly before adjusting the white balance.

③ **Settings before adjusting BACKGROUND**

Set the **MONO** switch on the front panel to ON for color bar signals and set the black/white screen.

Set the **SET UP** switch in the drawer panel to ON and set as follows.

④ **Initial adjustment of low light**

- Set only the **R.SCREEN** switch to ON (red screen only), adjust the R.BACKGROUND data so that the red line at Part B in the figure illuminates slightly.
- Set only the **G.SCREEN** switch to ON (green screen only), adjust the G.BACKGROUND data so that the red line at Part B in the figure illuminates slightly.
- Set only the **B.SCREEN** switch to ON (blue screen only), adjust the B.BACKGROUND data so that the red line at Part B in the figure illuminates slightly.

⑤ **Adjusting the high light portion**

- Return the **SET UP** and **SCREEN** switches to OFF.
- Pay attention to the high light portion of the staircase wave, and adjust the G/B GAIN to the desired color temperature.

⑥ **Adjusting the low light portion**

- Pay attention to the low light portion of the staircase wave, and adjust the R/G/B BACKGROUND to the desired color temperature.

⑦ As the ⑤ and ⑥ adjustments interfere with each other, repeat them until the desired color temperature is acquired from low light to high light.

d) **Adjustment procedure 2 (Using the color analyzer)**

To adjust the color temperature of the monitor using a commercially available color analyzer, adjust the G/B GAIN and R/G/B BACKGROUND of the monitor so that the chromaticity points (x, y) measured with the color analyzer becomes the following values.

CIE Chromaticity Points (x, y) in Relation to Color Temperature

Color Temperature	X	Y
6500°K	0.313	0.329
9300°K	0.283	0.297

① **Input signal**

Input a window signal or select the internal TEST signal (window signal).

② **Setting the file**

Select the file whose white balance you want to change.

Adjust BRIGHTNESS and CONTRAST before adjusting the white balance.

③ **Adjusting R.BACKGROUND**

To adjust the white balance based on red, set the R.BACKGROUND as follows.

- Set the **SET UP** switch in the drawer panel to ON, and set as shown in Fig. 4-6-2.
- Set only the **R.SCREEN** switch to ON (red screen only), and adjust the R.BACKGROUND data so that the red line at Part B in the figure illuminates slightly.
- Return the **SET UP** and **SCREEN** switches to their original settings (OFF), and do not move R.BACKGROUND thereafter.

④ **Setting CONTRAST**

Set CONTRAST to MANUAL, and contact the probe at the center of the window signal displayed on the screen. Preset the luminance value to approx. 5nit (cd/m^2) or 1.5fL using MANUAL operation.

The MANUAL luminance value set here changes as the white balance is adjusted. Therefore check the luminance every time you adjust the low light portion, and readjust the luminance if deviated.

A deviation of approx. ±2nit (±0.5fL) is allowed.

⑤ **Setting the chromaticity points (x, y) during high light**

Set CONTRAST to PRESET, and set the chromaticity points (x, y) in the high light portion as follows using G/B GAIN.

- First adjust B.GAIN so that the chromaticity point x becomes the specified value.
- Next adjust G.GAIN so that the chromaticity point y becomes the specified value.
- Repeat adjusting the chromaticity points (x, y) until they settle to the specified values. Adjusting the low light portion later will cause the chromaticity point during high light to deviate. Therefore go on to adjust the low light portion when the specified value is approached in the initial adjustment stage.

⑥ **Setting the chromaticity points (x, y) during low light**

Set CONTRAST to MANUAL, and set the chromaticity points (x, y) in the low light portion as follows using G/B GAIN.

- First adjust the chromaticity point x to the specified value using B.BACKGROUND.
- Next adjust the chromaticity point y to the specified value using G.BACKGROUND.
- Repeat adjusting the chromaticity points (x, y) until they settle to the specified values. Adjusting the low light portion will cause the chromaticity point during high light to deviate. Therefore adjust the high light portion again when the specified value is approached in the initial adjustment stage.

⑦ The adjustments are complete when the chromaticity points of both low light and high light portions have settled at the specified values.

(4) Adjusting the color balance

a) **Color balance**

For the component signal (YPbPr/RGB), adjust the color balance using CHROMA only. If the NTSC decoder module **DE-801** is mounted, input NTSC composite signal, and adjust the color balance using HUE/CHROMA.

b) **Adjustment procedure 1 (NTSC composite signal)**

① **Input signal**

Input SMPTE color bar signal or the NTSC 75% color bar signal similar to it.

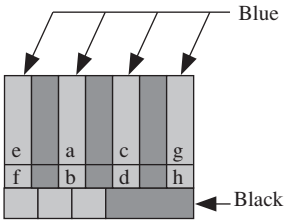


Fig. 4-6-3. NTSC 75% Color Bar Signal

② **Starting**

Set the screen to blue only using the SCREEN switch.

* As the luminance difference is hard to discern when the screen is bright, dim the surroundings as much as practical and lower the BRIGHTNESS manually until the blue signal is slightly visible. This will help make more accurate adjustment.

③ **Adjusting HUE**

Adjust HUE so that the parts a to d in Fig. 4-6-3 become the same brightness.

If they do no become the same brightness, set to the optimum state, and next adjust CHROMA.

④ **Adjusting CHROMA**

Adjust CHROMA so that the parts e to h in Fig. 4-6-3 become the same brightness.

If they do no become the same brightness, set to the optimum state, and adjust the HUE as described in step 3.

⑤ Repeat adjustments ③ and ④ until a to h become the same brightness.

c) **Adjustment procedure 2 (Component signal)**

① **Input signal**

Input the 100% color bar signal to the YPbPr input.

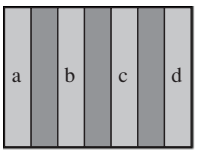


Fig. 4-6-4. 100% Color Bar Signal

② **Starting**

Set the screen to blue only using the **SCREEN** switch.

* As the luminance difference is hard to discern when the screen is bright, dim the surroundings as much as practical and lower the BRIGHTNESS manually until the blue signal is slightly visible. This will help make more accurate adjustment.

③ **Adjusting CHROMA**

Adjust CHROMA so that the parts a to d in Fig. 4-6-4 become the same brightness.

If the input signal is 75% color bar signal (a is 100% white and the parts b to d are 75%), adjust CHROMA so that the parts b to d become the same brightness.

(5) Adjusting the rotation

a) **Rotation**

ROTATION is the control for correcting changes in the purity caused by geomagnetic effects on the CRT which occur when the monitor is rotated.

Perform this adjustment every time the monitor is relocated.

b) **Adjustment procedure**

① **Starting**

Press the DEGAUSS switch to demagnetize the CRT.

② **Input signal**

Select a 50% white signal, which makes the entire screen evenly white, or the 50% full-flat internal TEST signal.

③ **Adjusting ROTATION**

- Press the **R.SCREEN** switch to set the screen to red only.
- Adjust ROTATION to the optimum purity of the screen (evenly red).
- Check also about the purity of green and blue.

(6) Adjusting the screen centering

a) **Screen center**

Use the following three controls when centering the screen.

Different data can be set for the respective signal formats.

- **MK.PHASE**

  Adjust the marker position so that the image and 100% marker phase match.

  * Different data is set for each format.

- **H.CENT**

  Adjust the horizontal deflection in relation to the escutcheon frame (CRT frame) so that the marker comes to the center of the frame.

  * Different data is set for each format. In the case of HDTV signal, different data is set also for 16:9 and HD 4:3 SCAN.

- **V.CENT**

  Adjust the vertical deflection in relation to the escutcheon frame (CRT frame) so that the marker comes to the center of the frame.

  * Different data is set for each format.

b) **Precautions**

As the MK.PHASE and H/V.CENT settings are stored as the data for each signal format, do not perform the following operations during the setting.

Performing any of the switching below will call the data in a different format and clear the data you are now working on.

- Switching channels
- Changing input signal format
- Switching SCAN
- Switching ASPECT

c) **Adjustment procedure**

Perform the following adjustment once for each signal format.

① **Input signal**

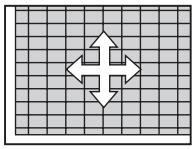
- Check the MENU 1 format is set properly to the signal format to be changed.

  For details of the format setting, refer to 4.7(3) in this manual.

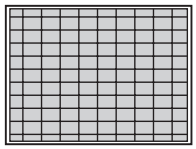
- The input signal should be the one, such as monoscope signal, which can display video on the whole active screen area.

② **Adjusting H.CENT/V.CENT**

- Set the size to NORMAL using the **SCAN** switch.
- Set the **MARKER** switch to ON, and display the 10-division crosshatch.
- Adjust the horizontal direction of the marker using H.CENT and vertical direction using V.CENT so that the top, bottom, left and right sides become the same.
- Before switching to UNDER SCAN using the **SCAN** switch in the adjustment below, press the **CHANGE PRESET** switch to store the data.



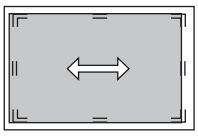
〈NG〉



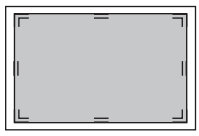
〈OK〉

③ Adjusting MK.PHASE

- Set to UNDER SCAN using the SCAN switch.
- Display the 100% marker using the **MARKER** switch.
- Adjust the phase using the MK.PHASE so that the frame of the image matches the 100% marker.



<NG>



<OK>

④ Before proceeding with the adjustments and changes in ② and ③ for a different format, first store the changed data and then switch the signal to a different format.

(7) **Adjusting the screen distortion**

a) **Screen distortion**

- The **SIDE PIN** and **TRAPEZOID** controls are provided to adjust the screen distortion.
  Pressing the **EXPAND** switch executes these adjustments alternately.
  These two preset data can be set differently for each signal format. In the case of HDTV signal, different data is set also for 16:9 and HD 4:3 SCAN.

b) **Precautions**

As the SIDE PIN and TRAPEZOID settings are stored as the data for each signal format, do not perform the following operations during the setting.
Performing any of the switching below will call the data in a different format and clear the data you are now working on.

- Switching channels
- Changing input signal format
- Switching SCAN
- Switching ASPECT

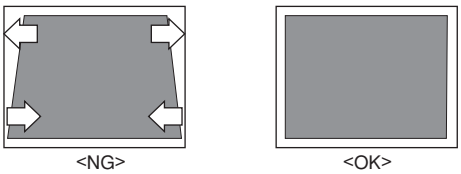
c) **Adjustment procedure**

① **Input signal**

- Check the MENU 1 format is set properly to the signal format to be changed.
  For details of the format setting, refer to 4.7(3) in this manual.
- Input a crosshatch signal or select the crosshatch internal TEST signal.

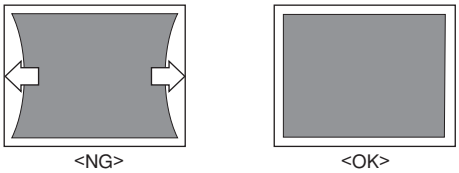
② **Adjusting TRAPEZOID**

Set the EXPAND switch to ON. The TRAPEZOID adjustment mode is entered. Adjust the trapezoid as shown in the figure below.



③ **Adjusting SIDE PIN**

Set the **EXPAND** switch to ON again. The SIDE PIN adjustment mode is entered. Correct the side pin distortion as shown in the figure below.



④ Before proceeding with the adjustments and changes in ② and ③ for a different format, first store the changed data and then switch the signal to a different format.

(8) **Adjusting the screen size**

a) **Screen size**

Set the screen size using HEIGHT and WIDTH. The following four sizes can be set for these two data per signal format (three sizes for HDTV). Individual data is provided for all formats which can be input, for the following sizes.

SCAN switch
- NORMAL SCAN
- UNDER SCAN

ASPECT switch
- 4:3 SCAN
- 16:9 SCAN

b) **Precautions**

As the HEIGHT and WIDTH settings are stored as the data for each signal format, do not perform the following operations during the setting.
Performing any of the switching below will call the data in a different format and clear the data you are now working on.

- Switching channels
- Changing input signal format
- Switching SCAN
- Switching ASPECT

c) **Adjustment procedure 1** (UNDER SCAN (HD 16:9, SD 4:3/16:9)

Adjust HEIGHT and WIDTH for HDTV 16:9 and SDTV 4:3/16:9 UNDER SCAN as follows.

① Input signal

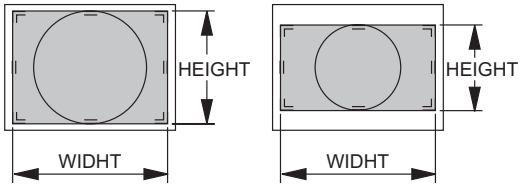
- Check the MENU 1 format is set properly to the signal format to be changed.
  For details of the format setting, refer to 4.7(3) in this manual.
- The input signal should be one having a circle pattern, which can display video on the whole active screen area.

② **Adjusting HEIGHT and WIDTH**

- Set the desired aspect using the **ASPECT** switch, and set UNDER SCAN using the **SCAN** switch.
- Set the MARKER switch to ON, and select the 100% marker.
- Adjust HEIGHT and WIDTH so that the 100% marker size becomes the UNDER SCAN size in the following table.

<UNDER SCAN Sizes>

ASPECT	FORMAT	HEIGHT	WIDTH
4 : 3	SD	270mm	360mm
16 : 9	SD/HD	203mm	360mm



〈4:3 (UNDER) size〉 〈16:9 (UNDER) size〉

* Before proceeding to adjust another SCAN size, be sure to press the CHANGE PRESET switch now to store the current data.

d) **Adjustment procedure 2** (NORMAL SCAN (HD 16:9, SD 4:3/16:9)
Adjust HEIGHT and WIDTH for HDTV 16:9 and SDTV 4:3/16:9 NORMAL SCAN as follows.

① **Input signal**

- Check the MENU 1 format is set properly to the signal format to be changed.
  For details of the format setting, refer to 4.7(3) in this manual.
- Input a crosshatch signal or select the crosshatch internal TEST signal.

② **Adjusting HEIGHT and WIDTH**

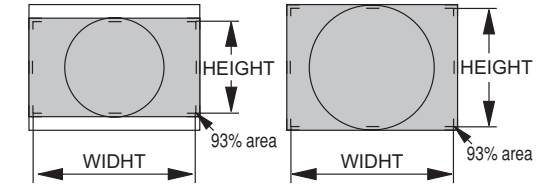
- Set the desired aspect using the ASPECT switch, and set NORMAL SCAN using the **SCAN** switch.
- Set the **MARKER** switch to ON, and select the 100%+93% marker.
- Adjust WIDTH so that the 93% marker size becomes the NORMAL SCAN size in the following table.

<NORMAL SCAN Sizes>

ASPECT	HD/SD	HEIGHT	WIDTH
4 : 3	SD	257mm	343mm
16 : 9	SD/HD	193mm	343mm

* This table shows the 93% marker size.

- Adjust HEIGHT so that the vertical diameter becomes identical to the horizontal diameter. If you are working with a signal not having a circle pattern, adjust the 93% marker size so that it becomes identical to the size shown below as a guide.



* Before proceeding to adjust another SCAN size, be sure to press the CHANGE PRESET switch now to store the current data.

e) **Adjustment procedure 3** (HDTV 4:3 SCAN)
Adjust HDTV 4:3 SCAN as follows.

① Input signal

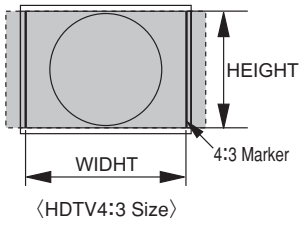
- Check the MENU 1 format is set properly to the signal format to be changed.
  For details of the format setting, refer to 4.7(3) in this manual.
- Input a crosshatch signal or select the crosshatch internal TEST signal.

② **Adjusting HEIGHT and WIDTH**

- Set the desired aspect using the **ASPECT** switch. The **SCAN** switch does not function.
- Set the **MARKER** switch to ON, and select the 4:3 marker.
- Adjust WIDTH so that the inner size of the 4:3 area marker becomes the size in the following table.

ASPECT	HD/SD	HEIGHT	WIDTH
4 : 3	HD	263mm	350mm

* This table shows the 4:3 marker size.

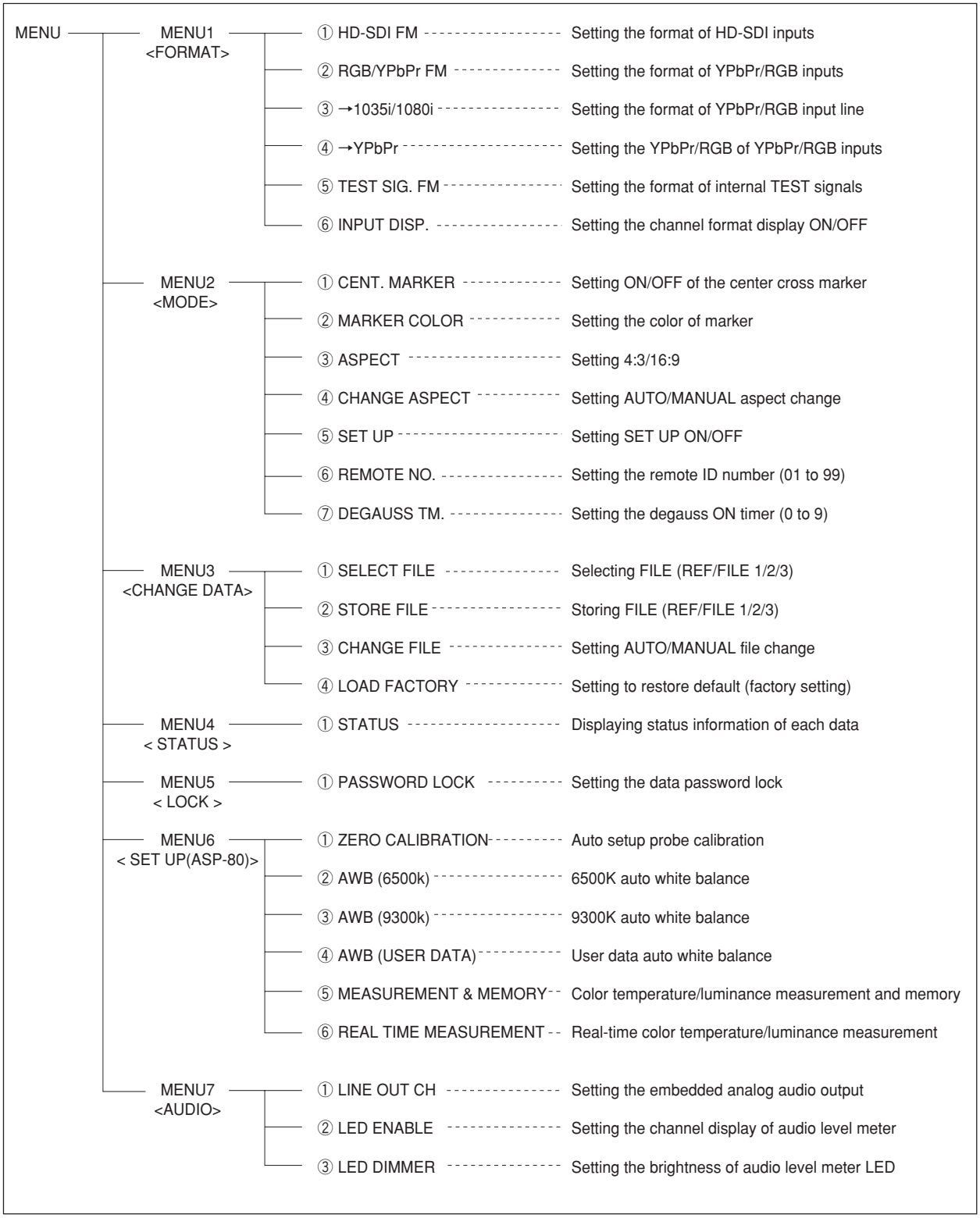


4-7. MENU Functions

(1) **List of MENU**

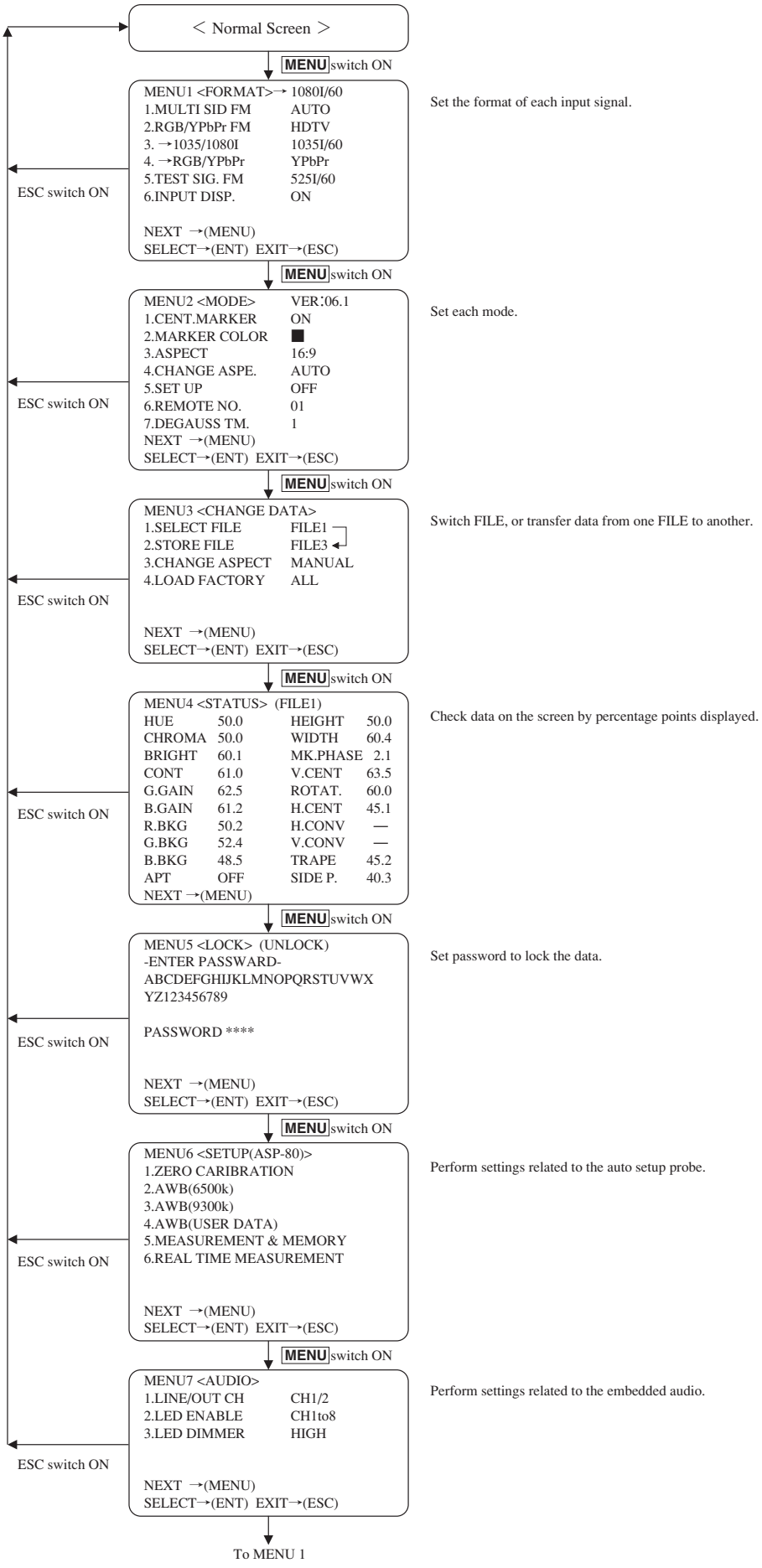
All functions can be executed in the MENU screen.

Table 4-1 List of MENU



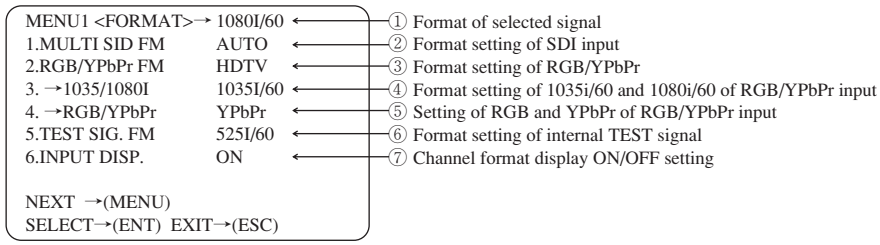
(2) Flow of MENU Operations

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



(3)**Description of MENU 1 Functions**

* Note the following description on the menu.
- ●The vertical deflection frequency "/60" includes both 60 Hz and 59.94 Hz.
- ●The vertical deflection frequency "/48" shows 24 sF (23.98 sF).
- ●480i/59.94 and 575i/50 are displayed as "525I/60" and "625I/50", respectively.



① Format display of selected signal

- Shows the format of the currently selected signal.

② Format setting of SDI input

- When the module (e.g. **DKH-501**) dedicated to HD-SDI input is mounted, set the format to any of 1035i/60, 1080i/60 , 720p/60 .
  When the HD-SDI input is selected, the monitor will be set up using the format set here.
- The multi-format SDI module, if mounted, triggers [AUTO] display and the auto detection by FORMAT. The format setting described here is not necessary.

③ Format setting of RGB/YPbPr input

Set the RGB/YPbPr input format to SDTV or HDTV.

- If set to SDTV, the format 480i/60 or 575i/60 is automatically detected, and the monitor is set up.
- If set to HDTV, the format 1080i(1035i), 720p/60 is automatically detected, and the monitor is set up.
  If the input signal is 1035i/60 or 1080i/60, the format should be set individually in the following step.
- Default setting is HDTV.

④Format setting of 1035i/60 and 1080i/60 of RGB/YPbPr input

- Set the scan line number to 1035i or 1080i.
- Default setting is 1080i/60.

⑤Setting of RGB and YPbPr of RGB/YPbPr input

- Set the RGB/YPbPr input signal to RGB or YPbPr.
- Default setting is YPbPr.

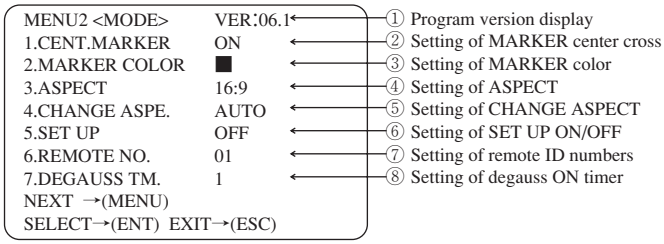
⑥ Format setting of internal TEST signal

- Set the internal TEST signal of the monitor.
- The following five formats are provided as standard.
  480i/59.94 ("525I/60" on the menu),
  575i/50 ("625I/50" on the menu),
  1035i/60
  1080i/60
  720p/60
- Default setting is 1080i/60.

⑦ Channel format display ON/OFF setting

- Set whether to show the input and the signal format when the channel is switched.

(4)**Description of MENU 2 Functions**

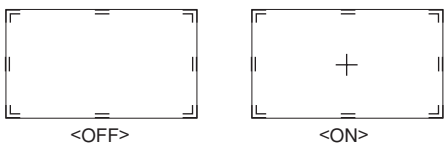


① Program version display

- Displays the software program version.

② Setting of MARKER center cross

- Set the marker center cross display to **ON/OFF**.



- Default setting is **OFF**.

③ Setting of MARKER color

- Set the marker color.
- Display colors: **White, Red, Green, Blue, Yellow, Magenta, Cyan**
- Default setting is Green.

④ Setting of ASPECT

- Switch between 4:3 and 16:9.
- The same operations are performed as the **ASPECT** switch located on the front panel and on the wireless remote controller.
  For details, refer to 4.3(1) **ASPECT** switch.

⑤ **Setting of CHANGE ASPECT**

- Associate the change of aspect settings with the switching of inputs.

  AUTO: Display with the aspect ratio preset for each channel.

  MANUAL: Fixed aspect ratio without automatic change along with channel switching. Apply this setting if 4:3/16:9 switching is done using parallel remote connection.

⑥ **Setting of SET UP ON/OFF**

- Set SET UP to ON or OFF.
- During SET UP, images are cut and reduced to 1/4 the normal height. Under this condition, adjust R/G/B BACKGROUND until lines become just visible.

  For details, refer to 4.6(3).

⑦ Setting of remote ID numbers

- Set the monitor ID numbers (01~99).
- When performing remote control operations using wireless remote controller (**RCT-30A**) or serial remote controller (**SRC-301Z**), the monitors can be remote controlled individually with the ID numbers (01~99) assigned to the monitors.

⑧ Setting of degauss ON timer

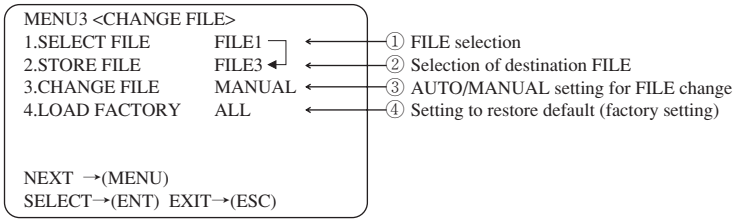
- Set the operation start time of the degauss (demagnetization) function, which operates automatically when the power is turned on, using 0~9 groups.
- By setting in groups 0 to 9, the overall rush current which flows when the power of all devices of the system are turned On can be minimized.
- Timer operation

  When set to 0, the degauss function will automatically start about 4 seconds after the power is turned on. The time delays with an increment of 0.5 seconds each time the setting is increased by 1.

  The table below shows the approximate time until the degauss function starts after the power is turned on.

Setting	Operation Start Time	Setting	Operation Start Time
0	4.0 seconds	5	6.5 seconds
1	4.5 seconds	6	7.0 seconds
2	5.0 seconds	7	7.5 seconds
3	5.5 seconds	8	8.0 seconds
4	6.0 seconds	9	8.5 seconds

(5)Description of MENU 3 Functions

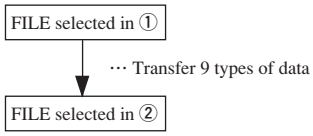


① **FILE selection**

- Select any of **REFERENCE**, **FILE 1**, **FILE 2** and **FILE 3**.
- The four files store the following 9 types of data. **HUE, CONTRAST, R.BACKGROUND, CHROMA, G.GAIN G.BACKGROUND, BRIGHTNESS, B.GAIN B.BACKGROUND**
- The operation is the same as the FILE switch in the drawer panel.

② **Selection of destination FILE**

- The data (9 types) in the file selected in ① are all transferred (overwritten) to the file selected here.



- When ALL is selected, the data in the file selected is transferred to all files (REF, FILE 1~3).

③ **AUTO/MANUAL setting for FILE change**

- Set AUTO or MANUAL for switching the FILE settings.

  AUTO: FILE setting for each channel is changed automatically along with channel switching.

  MANUAL: FILE setting is fixed.

④ **Setting to restore default (factory setting)**

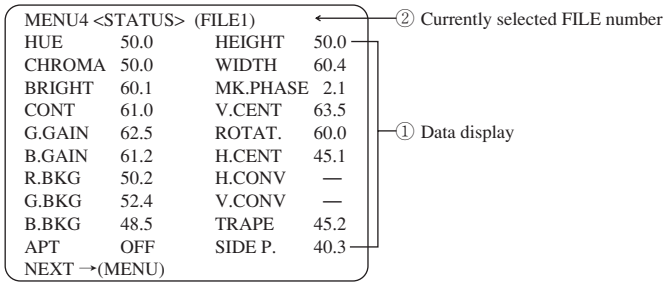
- Perform this setting to restore the default settings.

  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.

(6) **Description of MENU 4 Functions**



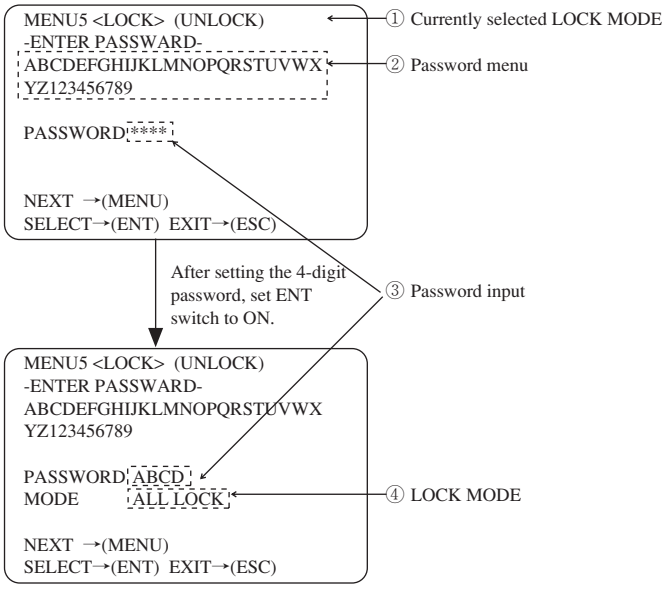
① Data display

- Various preset data are displayed in the range of 0 to 100% (0.1% resolution).
  Note that MK.PHASE is variable in the range of 0~25.0%.

② Currently selected FILE number

- Displays the currently selected FILE number.

(7) **Description of MENU 5 Functions**



① Currently selected LOCK MODE

The currently selected LOCK MODE is displayed here.

- **UNLOCK**: All data can be changed with the LOCK released.
- **ALL LOCK**:
  Change of all PRESET data and switching of FILE are disabled.
- **PRESET & FILE LOCK**:
  PRESET and FILE data are locked. Switching of FILE is allowed.

② Password menu

- Using the rotary encoder, select the characters here to set the password.

③ Password input

- When setting the LOCK mode to ALL LOCK or PRESET & FILE LOCK, or when exiting the LOCK mode (UNLOCK), select the characters from the menu and enter the 4-digit password here.

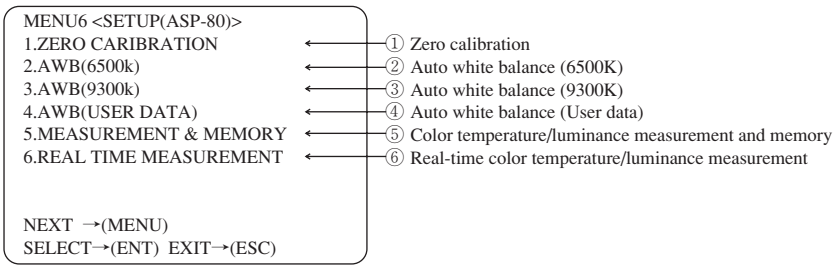
Precautions

If you forgot your password, contact the nearest Ikegami dealer.
We will provide a password to exit the LOCK mode.

④ LOCK MODE setting

When the **ENT** switch is pressed after entering the password, the LOCK mode blinks and can be changed by the rotary encoder. After this, fix the settings using the **ENT** switch and return to the previous state using the **ESC** switch.

(8) **Description of MENU 6 Functions**



For operation details, refer to the ASP-80 manual.

① Zero calibration

- Perform the calibration of **ASP-80**.
  Connect ASP-80 to the monitor, and make sure to perform this calibration before proceeding onwards.
- The function is disabled unless **ASP-80** is connected.
- Be careful not to allow external light into the sensor.
- When the sensor is not receiving light to be measured, the message "ERROR 1 : TOO LIGHT" appears.

② Auto white balance (6500K)

- Setup at 6500K
- To execute this setup, an input of 100% window signal or the window pattern internal test signal is needed.

③ Auto white balance (9300K)

- Setup at 9300K
- To execute this setup, an input of 100% window signal or the window pattern internal test signal is needed.

④ Auto white balance (User data)

- Setup at user color temperature.
- To execute this setup, an input of 100% window signal or the window pattern internal test signal is needed.

⑤ Color temperature and luminance measurement and memory

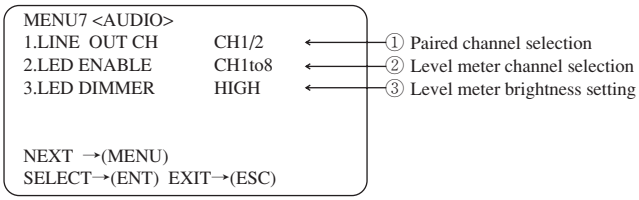
- Measure the color temperature, luminance and raster luminance of the user setting.
- The results can be stored as USER DATA if necessary.
- Measurable ranges are as follows.
  Luminance: 10~190cd/ m^2
  Raster luminance: 0.01~0.99cd/ m^2
  Color temperature (x, y coordinates):
  0.250~0.380

⑥ Real-time color temperature and luminance measurement

- Color temperature and luminance are measured for real-time display of the readings.
- The function can also be applied to the measurement of other devices.

(9) **Description of MENU 7 Functions**

* This menu is intended to control the embedded audio module DKM-511AV/AVD and the embedded audio level meter module DAM-504/508.
The setting in this menu does not function for a monitor without the above modules.



① Paired channel selection

- Select the **DKM-511AV** analog audio line output (2ch) from the four pairs of channels CH1/2, CH3/4, CH5/6 and CH7/8.
- This function is disabled for the embedded digital audio output model (**DKM-511AVD**).

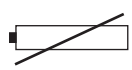
② Level meter channel selection

- Select the display channel of **DAM-504/508** from 8-channel (CH1 TO 8), 6-channel (CH1 TO 6) and 2-channel (CH1 TO 2) as necessary.
- For **DAM-504** (4-channel model), the selections of 8-channel and 6-channel are disabled.

③ Level meter brightness setting

- Select the brightness of **DAM-504/508** level meter LED from HIGH, MID, LOW and OFF.
  The setting is not applied to the tally (red and green).

4-8 Messages Displayed on the Screen

Message	Explanation
ALL LOCK	**Cause:** This message is displayed during the LOCK mode (see 4.7(7)) or when FILE 1, FILE 2 or FILE 3 switch is pressed. **Action:** Release the LOCK mode (UNLOCK), and resume the operation.
PRESET&FILE LOCK	**Cause:** This message is displayed when CHANGE PRESET switch or STORE FILE switch is pressed during the PRESET FILE setting in the LOCK mode (see 4.7(7)). **Action:** Release the LOCK mode (UNLOCK), and resume the operation.
CHANGE → PRESET ON	**Cause:** This message is displayed when each PRESET switch is pressed while CHANGE PRESET switch is OFF. **Action:** Set CHANGE PRESET switch to ON, and resume the operation.
CHANGE PRESET → OFF	**Cause:** This message is displayed when each PRESET switch is pressed while CHANGE PRESET switch is ON. **Action:** Set CHANGE PRESET switch to OFF, and resume the operation.
DELAY → OFF	**Cause:** This message is displayed when BRIGHT PRESET switch is pressed in the DELAY mode. **Action:** Cancel the DELAY mode, and resume the operation.
APT → ON	**Cause:** This message is displayed when APT PRESET switch is pressed while APT switch is OFF. **Action:** Set APT switch to ON, and resume the operation.
MARKER → ON	**Cause:** This message is displayed when MK.PHASE PRESET switch is pressed while MARKER switch is OFF. **Action:** Set MARKER switch to ON, and resume the operation.
STORE FILE → OFF	**Cause:** This message is displayed when CHANGE PRESET switch is pressed while FILE 1 to FILE 3 are blinking by pressing STORE FILE switch. Press STORE FILE switch to cancel the selection prompt (blinking), and resume the operation.
MANUAL → OFF	**Cause:** This message is displayed when PRESET switch is pressed while any MANUAL control is set to the MANUAL mode. **Action:** Set to the PRESET mode, and resume the operation.
MENU → OFF	**Cause:** This message is displayed when CHANGE PRESET switch is pressed with MENU on. **Action:** PRESET data cannot be changed with MENU on. Exit the MENU, and resume the operation.
NO OPERATION	**Cause:** This message is displayed when the operation is wrong or invalid. **Action:** Check the operation procedure and try again.
ENTER CORRECT PASSWORD	**Cause:** This message is displayed when wrong password is entered while setting the LOCK mode in the MENU 5. **Action:** Check the password and enter correctly.
	**Cause:** This mark is displayed when the MPU BOARD data backup lithium battery is low. **Action:** Replace the battery immediately. Refer to the service manual for the replacement method.

5. Installation of Options

5-1 Option Module

<Notes>

① Modules should be inserted into the slots specified in the figure below.

② Optional modules should be inserted into the slot Nos. 2-5.
(The figure below is an example. These modules may not be installed in the product you purchased.)

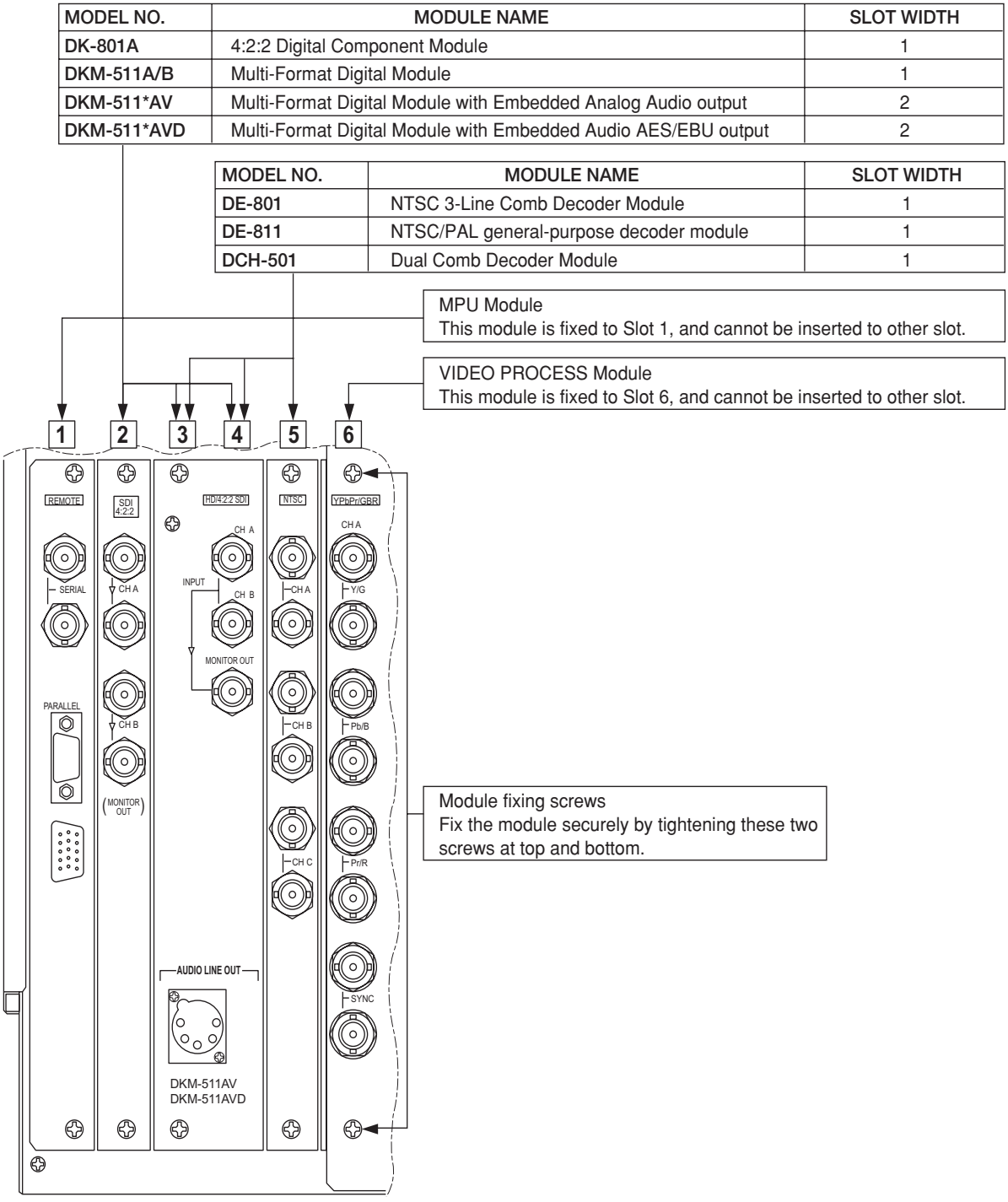
③ Slot 1 and Slot 6 accept the fixed modules only.

④ Remove the blank panel before you mount the module.

⑤ Fix the module securely with the two screws located at top and bottom.
Loose screws may cause the module to come off or result in poor connector contact.

MODEL NO.	MODULE NAME	SLOT WIDTH
DK-801A	4:2:2 Digital Component Module	1
DKM-511A/B	Multi-Format Digital Module	1
DKM-511*AV	Multi-Format Digital Module with Embedded Analog Audio output	2
DKM-511*AVD	Multi-Format Digital Module with Embedded Audio AES/EBU output	2

MODEL NO.	MODULE NAME	SLOT WIDTH
DE-801	NTSC 3-Line Comb Decoder Module	1
DE-811	NTSC/PAL general-purpose decoder module	1
DCH-501	Dual Comb Decoder Module	1

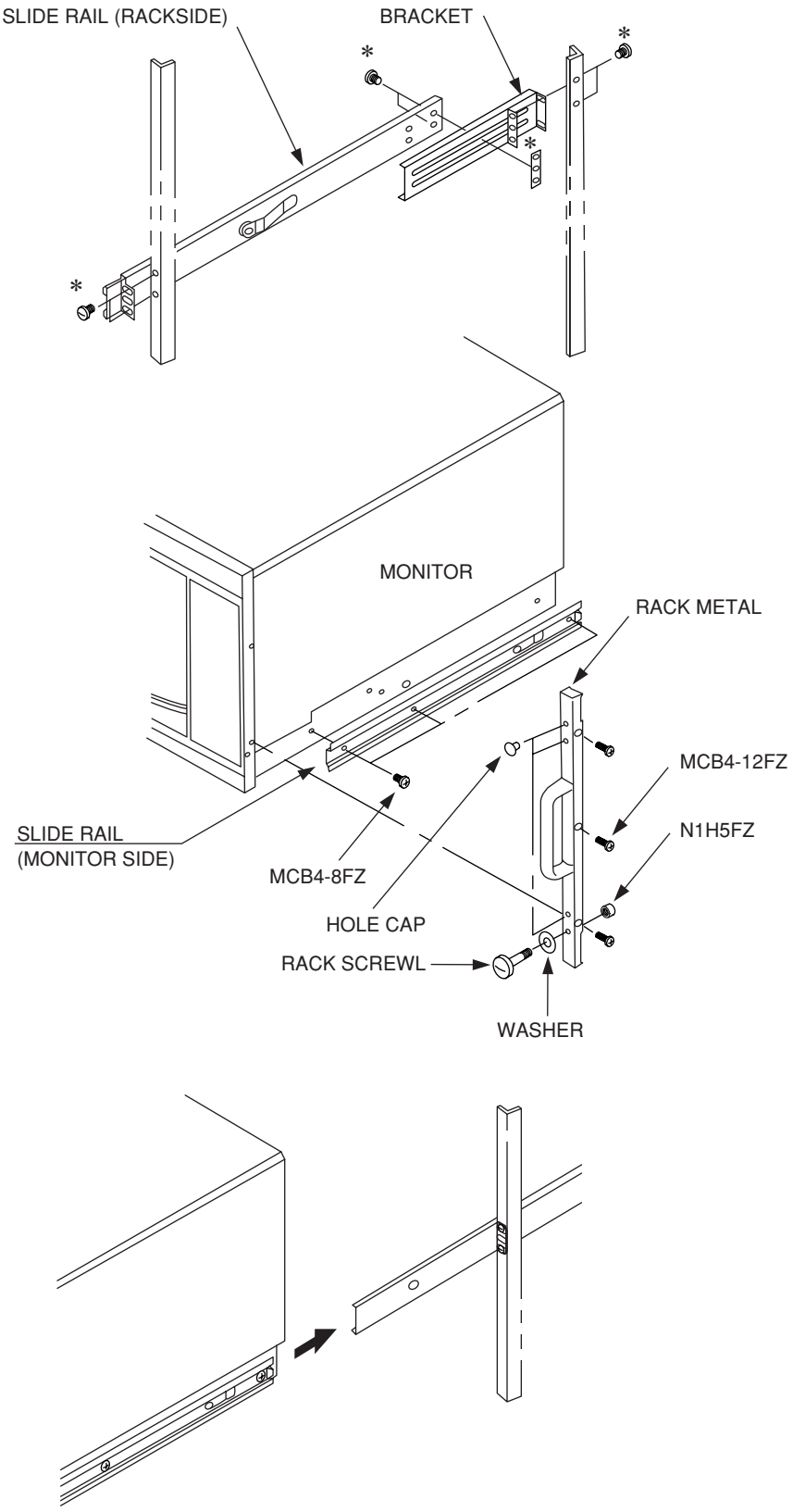


5-2 Rack Mount Adapter

(1)**RS-2020S**

Rack Mount Adapter for **HTM-1917R/2050R**

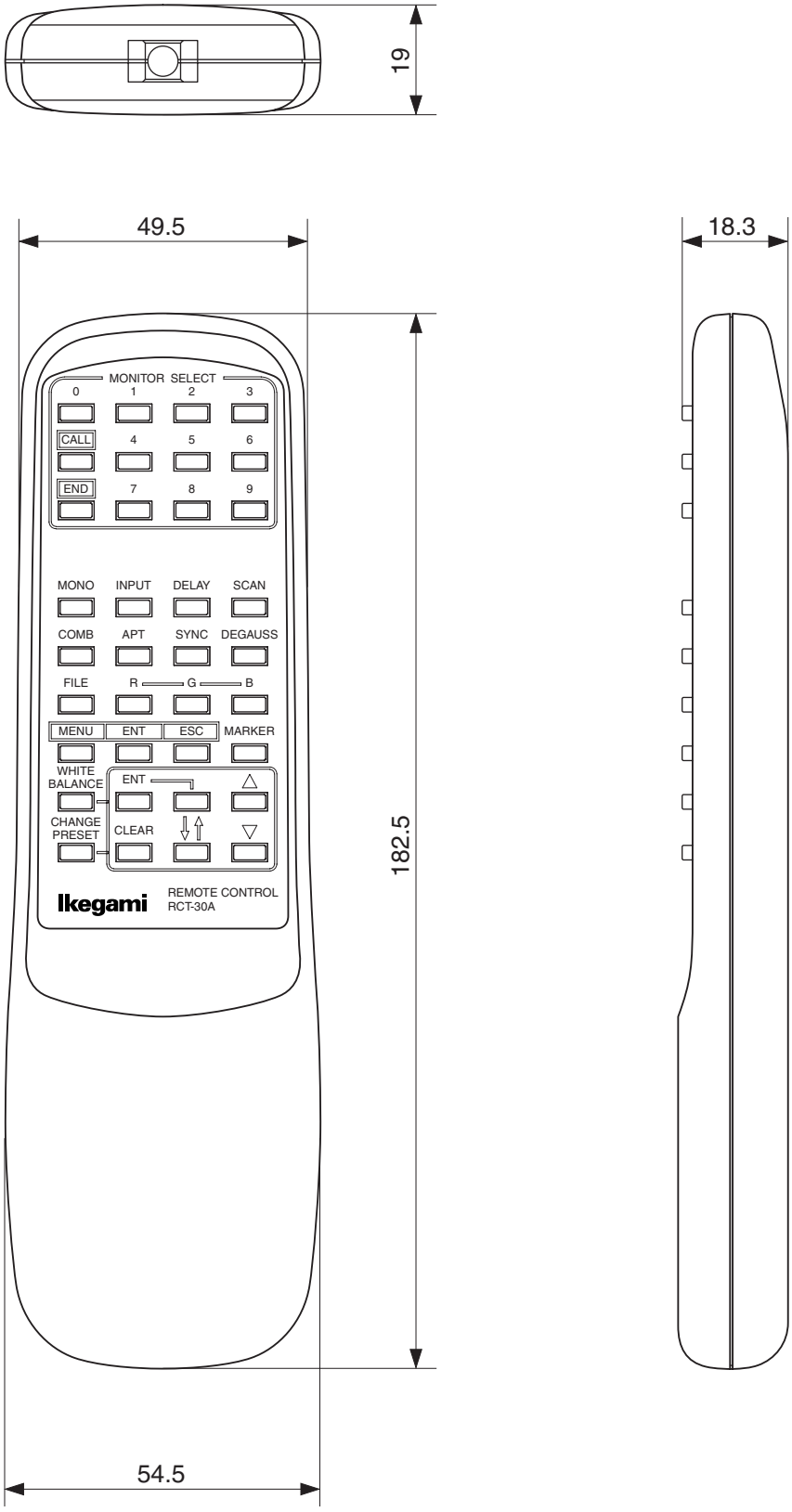
*The parts marked are supplied with the slide rail.
*marks are attachments for the side rail.



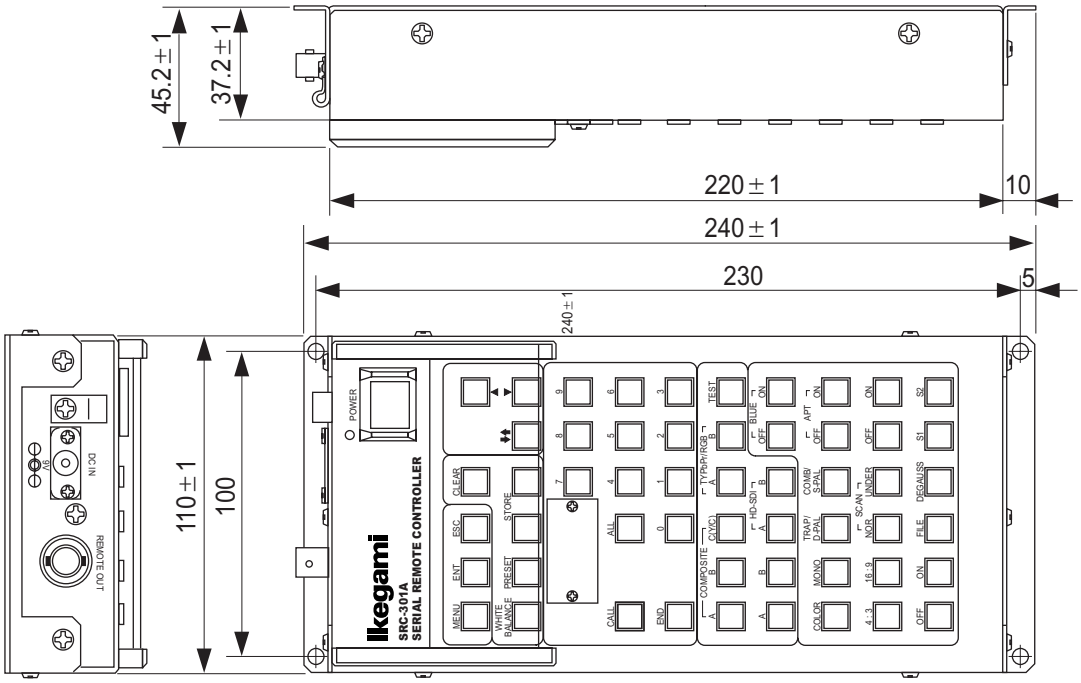
RS-2020S
SLIDE RAIL

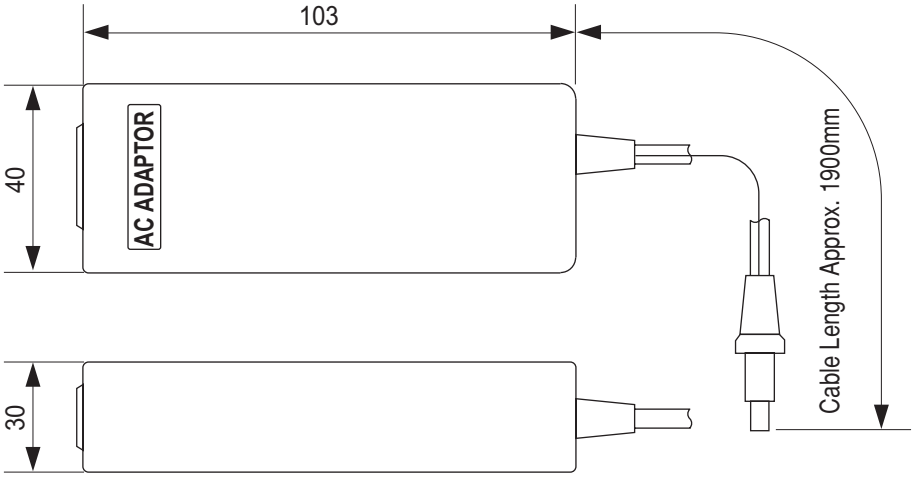
5-3 Remote Controller

(1)**RCT-30A Infrared Remote Controller**



(2)**SRC-301Z Serial Remote Controller**





6. Memo

Although various PRESET DATA has data of the following kinds, write down customized PRESET DATA for your memorandum.

If you have modified the PRESET DATA unintentionally, you can restore the default setting by executing LOAD FACTORY in MENU 3-4.

DATA	REF.	FILE 1	FILE 2	FILE 3
HUE				
CHROMA				
BRIGHT				
CONT				
G.GAIN				
B.GAIN				
R.BKG				
G.BKG				
B.BKG				
APT				
ROTATION				

DATA		480i	575i	1035i	1080i	720p	( )	( )
HEIGHT	4:3 UNDER							
	4:3 NORMAL							
	HD 4:3*							
	16:9 UNDER							
	16:9 NORMAL							
WIDTH	4:3 UNDER							
	4:3 NORMAL							
	HD 4:3*							
	16:9 UNDER							
	16:9 NORMAL							
H.CENT	HD 4:3 *							
	16:9							
V.CENT								
MK.PHASE								
TRAPEZOID	HD 4:3 *							
	16:9							
SIDE PIN	HD 4:3 *							
	16:9							
MOIRE	4:3 UNDER							
	4:3 NORMAL							
	HD 4:3*							
	16:9 UNDER							
	16:9 NORMAL							

* 4:3 means HD4:3SCAN in the case of HDTV.

MODEL HTM-1917R

HDTV/SDTV MULTI FORMAT COLOR MONITOR

OPERATION MANUAL

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