

# Monitor Control Unit

## Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

**BKM-17R**

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# Table of Contents

**Features ..... 3**

**Available Monitors and Functions ..... 4**

**Location and Function of Parts ..... 6**

    Front Panel..... 6

    Rear Panel ..... 9

**Handling a USB memory stick ..... 10**

    Notes on USB memory sticks ..... 10

**Mounting the Unit in a Rack ..... 11**

**Connections ..... 11**

    Connecting One Monitor ..... 12

    Connecting the Multiple Units with the LAN ... 12

**Specifications ..... 13**

**Dimensions ..... 15**

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# Features

The BKM-17R is a control unit for the BVM/PVM series business & professional video monitor. Use it to power monitors on and set in sleep mode, perform menu operations, and carry out monitor setup and adjustment.

*For monitors connectable to this unit and usable functions, see page 4.*

## **Remote control function (Ethernet control)**

The unit controls up to 32 monitors by the Ethernet (10BASE-T/100BASE-TX) connection. Up to three units are connected to one monitor in single mode. You can control individual monitors or monitor groups simply by entering the monitor ID number or group ID number. You can also execute the same operation on all connected monitors, or put all connected monitors into the same setup and adjustment state.

## **Setup and adjustment with a USB memory stick**

You can use a USB memory stick (sold separately) to save and load monitor setup and adjustment data. If your system includes more than one monitor, you can use the USB memory stick to exchange data between monitors. This makes it easy to match all monitors in your system to the same setup and adjustment conditions.

## **Rack mounting**

You can mount the unit in an EIA standard 19-inch rack with the supplied rack mount brackets and screws.

## **Assignable function key**

Other functions are assigned to the F1 to F16 buttons in the Controller menu of the monitor.

# Available Monitors and Functions

The monitors that can be connected to the unit are the following.

Available functions vary depending on the models. For details on how to use each function, refer to the manual of your monitor.

## Monitors which can be connected

Model name/Series name	Group
BVM-HX310	A
BVM-E251/BVM-E171	B
PVM-X3200/PVM-X2400/PVM-X1800	C
LMD-A240/LMD-A220/LMD-A170	D
BVM-X300	E
except BVM-E251/E171 BVM-E series/BVM-F series	F
PVM-X550	G
PVM-A250/PVM-A170	H
BVM-L series/PVM-L series	I

## Functions which can be used

Some buttons and knobs may not function, depending on the input signal. For details on limitations with each type of input signal, refer to the manual of your monitor.

Available function	Group								
	A	B	C	D	E	F	G	H	I
Setup/adjustment with USB memory	×	○	×	×	×	○	×	×	○
CAPTURE	×	○	×	×	×	○	×	×	○
Function assignment to function buttons	×	○	×	×	×	○	×	×	○
Menu operation	○	○	○	○	○	○	○	○	○
Monitor selection	○	○	○	○	○	○	○	○	○
Display mode setting for the display window	×	○	×	×	×	○	×	×	○
CONTRAST/BRIGHT/CHROMA/ PHASE MANUAL adjustment buttons and knobs	○	○	○ <sup>4)</sup>	○	○	○	○	○	○
Input items (adjustment knobs)	○	○	○	×	○	○	○	×	○
Numeric buttons	○ <sup>1)</sup>	○	○ <sup>1)</sup>	○ <sup>1)</sup>	○ <sup>1)</sup>	○	○ <sup>1)</sup>	○ <sup>1)</sup>	○
MONITOR   / ⏻	○	○	○	○	○	○	○	○	○
Scan Mode	×	○	×	×	×	○	×	×	○
Native Scan	○	○	○	○	○	○	○	○	○
16:9	×	○	×	○	×	○	×	○	○
H Delay	×	○	×	×	×	○	×	×	○
V Delay	×	○	×	×	×	○	×	×	○
External Sync	×	×	×	×	×	○	×	×	○
Comb	×	×	×	×	×	○	×	×	○
Char Off (Character Off)	○	○	×	×	○	○	○	×	○
Color Temp	×	○	×	×	×	○	×	×	○
Status	×	○	×	×	×	○	×	×	×

Available function	Group								
	A	B	C	D	E	F	G	H	I
Aperture	○	○	○ <sup>5)</sup>	×	○	○	○	×	○
Mono	○	○	○	○	○	○	○	○	○
Blue Only	○	○	○	○	○	○	○	○	○
R Off	○	○	○	×	○	○	○	×	○
G Off	○	○	○	×	○	○	○	×	○
B Off	○	○	○	×	○	○	○	×	○
Chroma Up	×	○	○ <sup>3)</sup>	○	×	○	×	○	○
Interlace	○	○	×	×	○	○	×	×	○
Pixel Zoom	×	○	○	×	×	○	×	×	○
Capture Load	×	○	×	×	×	○	×	×	○
Marker	○	○	○	○	○	○	○	○	○
Aspect Marker	○	○	○	×	○	○	○	×	○
Area Marker 1	○	○	○	×	○	○	○	×	○
Area Marker 2	○	○	○	×	○	○	○	×	○
Center Marker	○	○	○	×	○	○	○	×	×
Aspect Marker-Line	○	○	○	×	○	○	○	×	×
Aspect Blanking-Half	○	○	○	×	○	○	○	×	×
Aspect Blanking-Black	○	○	○	×	○	○	○	×	×
Side by Side	×	○	○	○	×	○	×	○	○
Wipe	×	○	×	○	×	○	×	○	○ <sup>2)</sup>
Butterfly	×	○	×	×	×	○	×	×	○ <sup>2)</sup>
Blending	×	○	×	○	×	○	×	○	○ <sup>2)</sup>
Error Notify Clear	×	○	×	×	×	○	×	×	○
Audio Level Meter	×	○	○	○	×	○	×	○	○
ALM Hold Reset	×	○	×	×	×	○	×	×	○
Time Code	○	○	○	○	×	○	×	○	○
Difference	×	×	×	×	×	○	×	×	×
Checkerboard	×	×	×	×	×	○	×	×	×
L/R Switch	×	×	×	×	×	○	×	×	×
Horopter Check	×	×	×	×	×	○	×	×	×
Flip H	×	×	×	○	×	○	×	○	×
Black Frame Insertion	×	×	×	×	×	×	×	×	○
Black Detail Mode	×	×	×	×	×	×	×	×	○
Flicker Free	×	○	×	×	×	×	×	○	×
Degauss	×	×	×	×	×	×	×	×	×

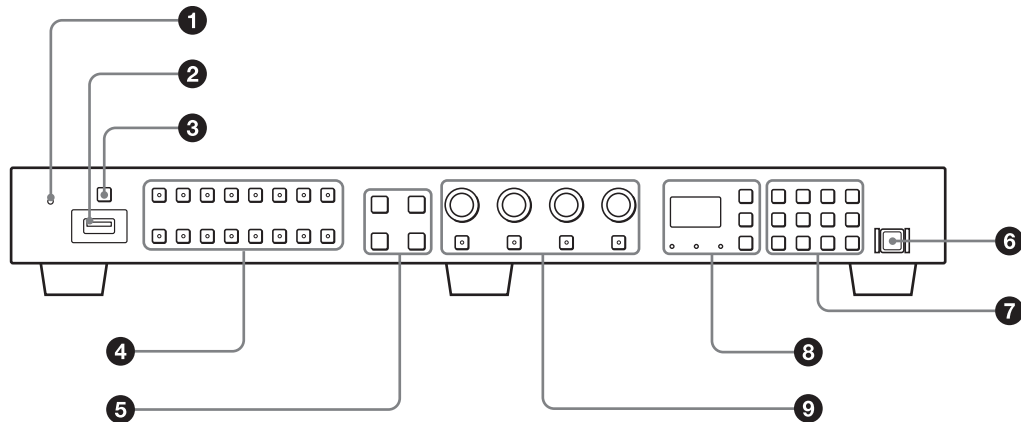
○ : available  
 × : not available

- 1) The functions are assigned to the numeric keypad. For details, refer to the manual of your monitor.
- 2) Available functions vary depending on the models. For details, refer to the manual of your monitor.
- 3) Corresponds to versions later than Software Version 4.0. For details, refer to the manual of your monitor.
- 4) Displaying the Chroma/Brightness/Contrast adjustment menu is necessary.
- 5) Displays the Aperture adjustment menu. Adjusts using UP/DOWN buttons.

# Location and Function of Parts

For functions available with your monitor, see page 4.

## Front Panel



### 1 OPERATE lamp

The lamp lights when the unit is turned on.

### 2 (USB connector)

You can use a USB memory stick (sold separately) to save and load monitor setup and adjustment data.

*For inserting/ejecting the USB memory stick, see “Handling a USB memory stick” (page 10).*

### 3 CAPTURE button

Press to capture the 3G/HD-SDI input signal as the still picture in frame.

### 4 Function buttons

Press to change the operation conditions for the monitor.

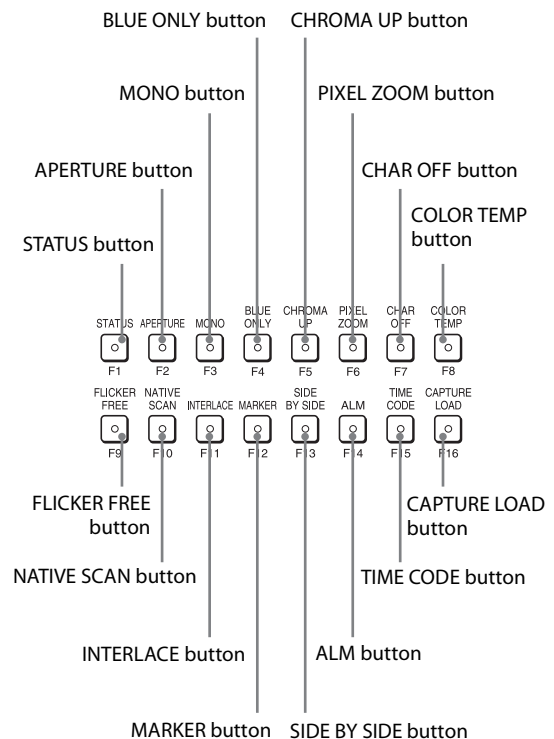
Each time the button is pressed, the LED on the button turns on and turns off, and the operation conditions are changed. (The LED may not turn on depending on the function.)

You can assign other functions to the F1 to F16 buttons.

#### Note

The button may not function due to the input signal. For the limitations with each type of signal, refer to the manual of your monitor.

### Factory preset setting



**STATUS button:** Press to display the current status of the monitor.

**APERTURE button:** Press to modify the frequency response.

The degree of modification is set in the menu of the monitor.

**MONO button:** Press to display a monochrome picture.  
When the button is set to off, the monitor switches automatically between color and monochrome mode, depending on the color discrimination of the input adaptor.

**BLUE ONLY button:** Press to cut red and green signals and display only the blue signal as a monochrome picture. This function is useful for adjusting chroma and phase, and for checking signal noise.

**CHROMA UP button:** Press to increase the chroma setting by 12 dB.

**PIXEL ZOOM button:** Press to enlarge part of the image up to 8 times using the pixel zoom function.

**CHAR OFF button:** Press to hide the characters from the monitor during manual adjustment.

**COLOR TEMP button:** Press to display the Manual Adjust menu of the color temperature on the monitor.

**FLICKER FREE button:** Press to change the flicker free setting.

**NATIVE SCAN button:** Press to display the picture in native scan mode.

**INTERLACE button:** Press to display interlaced picture.

**MARKER button:** Press to display all markers on the screen.  
The marker display mode is set in the menu of the monitor.

**SIDE BY SIDE button:** Press to display the picture in side-by-side format.

**ALM button:** Press to display the audio level meter.

**TIME CODE button:** Press to display the time code.

**CAPTURE LOAD button:** Press to display the menu for loading captured images from the USB memory stick.

## 5 Menu operation buttons

### MENU button:

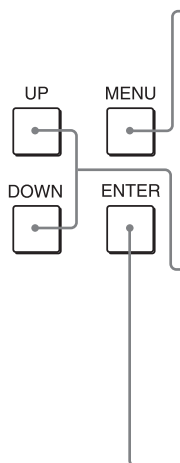
Displays the monitor menu.  
Press again to clear the menu in the main menu. Each time the button is pressed in other menu, the menu returns to the upper level.

### UP/DOWN buttons:

Move the cursor upward or downward. In setting mode, the setting or adjustment value is increased by pressing UP and decreased by pressing DOWN.

### ENTER button:

Changes the item. In setting mode, confirms the adjustment or setting value. (Ent button on the numeric keypad has the same function.)

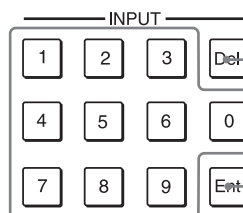


## 6 MONITOR | / ⏻ switch

Each time the switch is pressed, the monitor is turned on or set in sleep mode. When several monitors are connected to the unit, it is possible to turn on the power of the specified monitors only, or of all monitors at the same time or to set in sleep mode by setting with the monitor selection button.

## 7 Numeric keypad

Use to designate the channel number for the input signal to be monitored, or to enter the setting values with the menus.



### Del button:

Deletes the entered values and characters one by one.

### Numeric buttons

### Ent button:

Changes the item. In setting mode, confirms the adjustment or setting value. (ENTER button of the menu operation buttons has the same function.)

### Channel number entry method

When selecting a one-digit number, press the button of the channel number.

When selecting a two-digit number, first press the 0 button, then press a two-digit channel number.

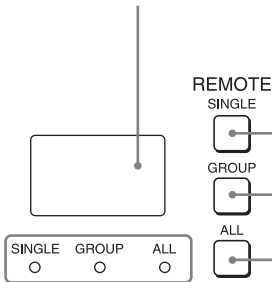
## 8 Monitor selection buttons and lamps

When multiple monitors are connected by the network connection, one particular monitor, monitor group or all monitors are selected by setting the monitor ID number, Group ID number or ALL.

Display mode of the display window is set in the menu of the monitor.

### Display window:

Displays the selected ID number or ALL. The display flashes until the remote connection is completed. “---” is displayed when the monitor and controller are in 1 to 1 connection (PEER TO PEER mode connection).



### Lamps:

The lamp corresponding with the pressed button flashes and lights after recognizing the monitor.

### SINGLE button:

Selects single connection mode. The designated monitor is connected remotely. The monitor ID number is displayed on all connected monitors when the button is held pressed.

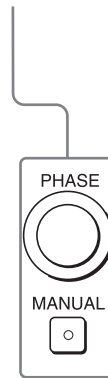
### GROUP button:

Selects group connection mode. The monitor of the designated group is connected remotely. The group ID number is displayed on all connected monitors when the button is held pressed.

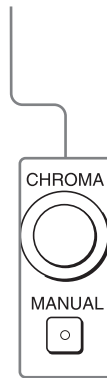
### ALL button:

Selects all connection mode. All monitors are connected remotely.

### PHASE button and knob



### CHROMA button and knob



### BRIGHT button and knob



### CONTRAST button and knob



### Note

The button and knob may not function due to the input signal. For the limitations with each type of signal, refer to the manual of your monitor.

## 9 MANUAL adjustment buttons and knobs

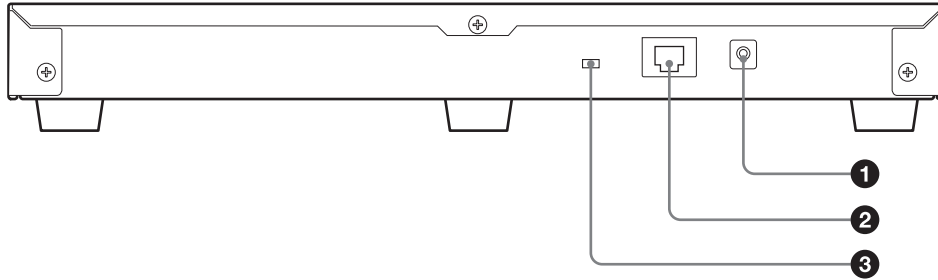
Each time one of these buttons is pressed, the LED on the button lights in green or turns off. When the corresponding button is set to on (lit), it is possible to manually adjust the contrast, brightness (black level), chroma (color saturation) and phase by turning the corresponding knobs.

When the corresponding button is set to off, the picture adjustment preset value set in the menu of the monitor is applied.

The PHASE knob is also used to enter the setting values in the menus of the monitor.



## Rear Panel



### ❶ DC 12V connector

Connect to the DC 12V OUT connector of the monitor by using the supported cables.

Supported cables vary depending on the monitor.

#### For BVM-E251/BVM-E171

The output cable of the supplied AC adaptor, SMF-17R20, or the cable supplied with the controller attachment stand such as BKM-37H

#### For another monitors

The output cable of the supplied AC adaptor

### ❷ LAN (10/100) connector (10BASE-T/100BASE-TX)

Connect to the LAN (10/100) connector of the monitor by using the SMF-17R20 or the cable supplied with the controller attachment stand such as BKM-37H. Or connect to the network or the LAN (10/100) connector of the monitor by using a 10BASE-T/100BASE-TX LAN cable (shielded-type, optional).

## CAUTION

- For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.
- When you connect the LAN cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.
- To connect the unit to the LAN (10/100) connector of the monitor in 1 to 1 connection (NETWORK switch is set to PEER TO PEER), use a straight (shielded-type) cable.
- The connection speed may be affected by the network system.

### ❸ NETWORK switch

**LAN:** To connect to the network.

**PEER TO PEER:** To connect to the LAN (10/100) connector of the monitor in 1 to 1 connection.

# Handling a USB memory stick

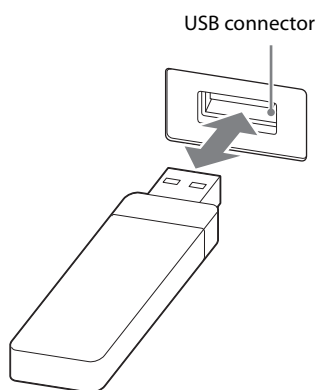
This product has a USB connector. Proceed as illustrated to insert and eject a USB memory stick (sold separately).

*See each menu on the monitor for information about operations using data from the USB memory stick.*

## Note

Do not eject the USB memory stick while data is being saved or loaded.

## To insert and eject the USB memory stick



## Notes

- Make sure to insert the USB memory stick into the USB connector in the correct direction.
- When ejecting the USB memory stick, make sure that the unit is not accessing the USB memory stick.

## Notes on USB memory sticks

The USB 3.0 memory sticks up to 8 GB have been tested with this product.

## Note

This does not guarantee complete support of all USB memory sticks.

## Note on data read/write speed

Data read/write speed may vary depending on the combination of the USB memory stick and the product that you use.

## Notes

- Image data may be damaged in the following cases:

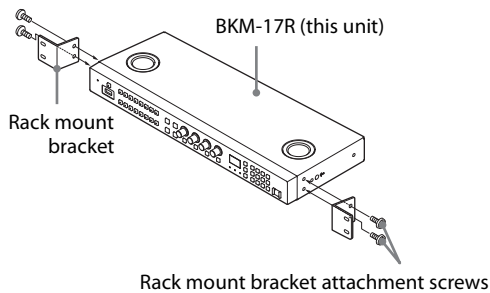
- If you eject the USB memory stick, or turn the unit off while accessing the data
- If you use a USB memory stick near static electricity or a magnetic field
- We recommend backing up important data.
- Do not touch the connector of the USB memory stick with anything, including your finger or metallic objects.
- Do not strike, bend, or drop the USB memory stick.
- Do not disassemble or modify the USB memory stick.
- Do not allow the USB memory stick to get wet.
- Do not use or store the USB memory stick in a location that is:
  - Extremely hot, such as in a car parked in the sun
  - Under direct sunlight
  - Very humid or subject to corrosive substances
- The USB connector of this unit is compatible with USB memory sticks. Do not insert other devices than USB memory sticks, such as USB conversion adaptors.
- You cannot use any other devices than USB memory sticks with the USB connector of this unit, such as USB hubs.
- Do not insert multiple USB memory sticks at the same time. This may cause damage to the product.
- When you use a USB memory stick with this product, be sure to insert it in the right direction. Inserting it in the wrong direction may cause damages to the product.
- The USB memory stick should be kept away from small children to prevent them from accidentally swallowing it.
- The USB memory stick must be formatted with the FAT32 file system. If you insert the USB memory stick which has been formatted with another file system, a format error occurs and the USB memory stick is not usable for this unit.

It is against the copyright law to use any audio or picture you recorded without prior consent of the copyright holder. Accordingly, USB memory sticks with content protected image or data can be only used within the law.

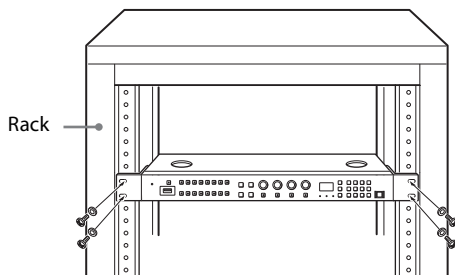
# Mounting the Unit in a Rack

To mount the unit in an EIA standard 19-inch rack, use the supplied rack mount brackets and screws.

- 1 Remove the five feet from the bottom of the unit.
- 2 Attach the rack mount brackets to each side of the unit with the rack mount bracket attachment screws.



- 3 Screw the rack mount brackets to the rack to mount the unit. (Use the commercially available screws that match the size of the rack's holes.)

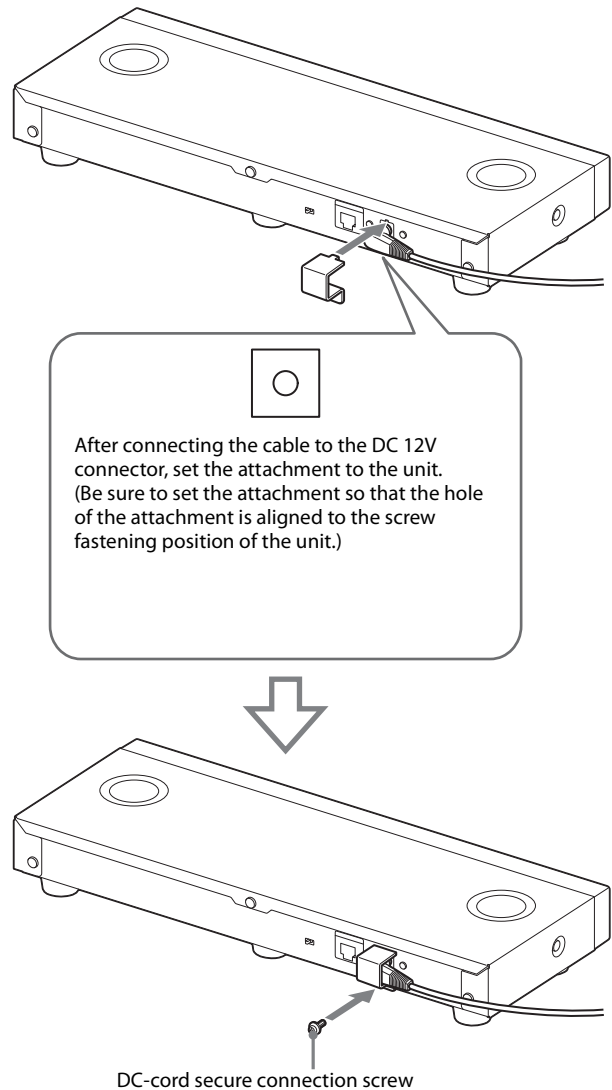


# Connections

The illustrations of the monitor used in this manual are BVM-E251.

## Note on connecting the cable to the DC 12V connector

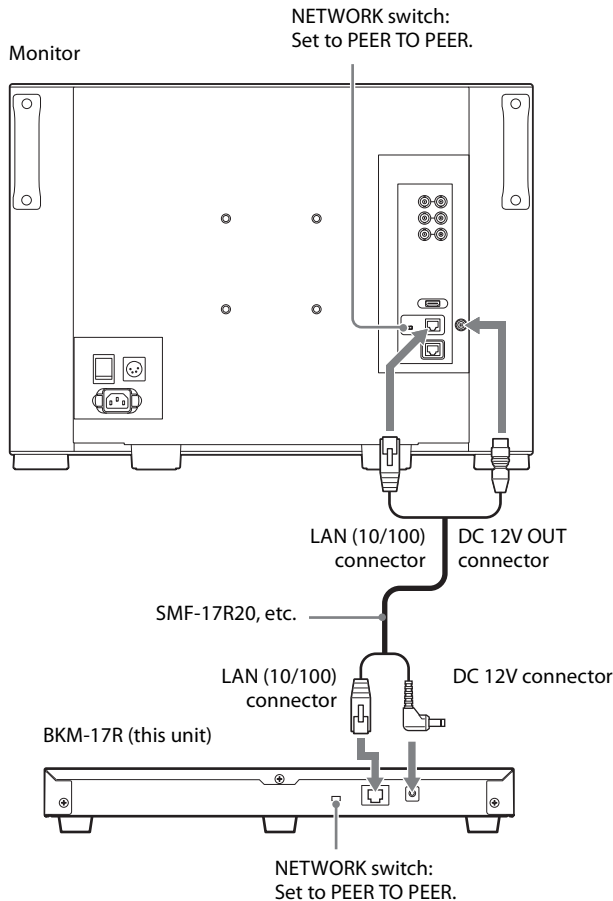
Firmly connect the supplied DC-cord secure connection attachment, and secure it using the supplied screw to prevent cable disconnection.



## Note

Do not use a screw other than the one supplied, as doing so may damage the interior of the unit.

## Connecting One Monitor



- 1 Turn off the power switch of the monitor before connecting the unit.
- 2 Set the NETWORK switch of the monitor and the unit to PEER TO PEER.
- 3 Connect the LAN (10/100) connector of the monitor and the LAN (10/100) connector of the unit by using the SMF-17R20 or the cable supplied with the controller attachment stand such as BKM-37H, or a 10BASE-T/100BASE-TX straight LAN cable (shielded-type, optional).

### Note

When an optional LAN cable is connected, use a shielded-type cable to prevent a malfunction due to noises.

- 4 Connect the DC 12V OUT connector of the monitor and the DC 12V connector of the unit by using the SMF-17R20 or the cable supplied with the controller attachment stand such as BKM-37H. Or connect the output cable of the AC adaptor

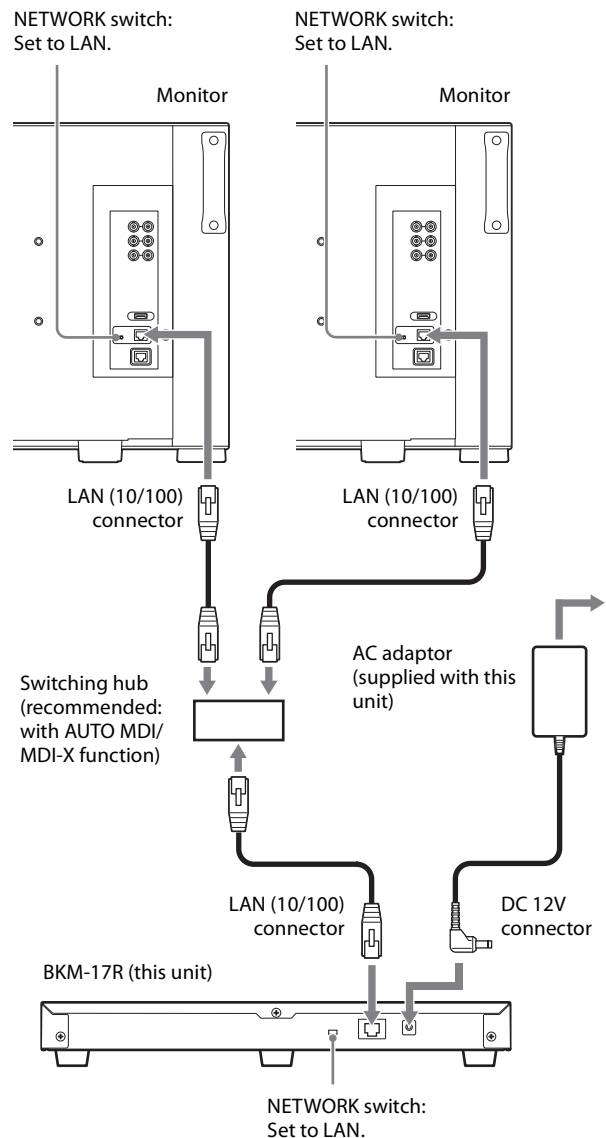
supplied with the unit to the DC 12V connector of the unit.

## Connecting the Multiple Units with the LAN

The unit controls up to 32 monitors. Up to three units are connected to one monitor in single mode.

### Note

The unit cannot control monitors in another subnetwork.



- 1 Turn off the power switch of the monitor before connecting the units.
- 2 Connect to the network by using a 10BASE-T/100BASE-TX cable (shielded-type, optional).

### Notes

- When an optional LAN cable is connected, use a shielded-type cable to prevent a malfunction due to noises.
- We recommend to use an optional switching hub with auto selection function (AUTO MDI/MDI-X) of a straight/cross cable.  
When the switching hub without auto selection function is used, connect the monitor and switching hub with the straight cable, and the unit and switching hub with the cross cable.

- 3** Connect the output cable on the AC adaptor supplied with the unit to the DC 12V connector of the unit.

### Note

When the multiple units are connected, set for the LAN in the menu of the monitor before setting the NETWORK switch to LAN.

- 4** Set the NETWORK switches of each monitor and the unit to LAN.

### Note

For connection, also refer to the manual of the connected monitor.

## Specifications

### Input/Output

LAN (10BASE-T/100BASE-TX) connector	RJ-45 × 1
DC 12V	Circle pin × 1
USB (USB2.0) connector	USB Standard A × 1

### General

#### Power requirements

BKM-17R  
DC IN: 12 V, 0.5 A (supplied with the connected monitor or the connected AC adapter)  
AC adapter (For the model name, see the plate on the AC adapter.)  
AC IN: 100 - 240 V, 50 - 60 Hz  
DC OUT: 12 V, 3 A

#### Current consumption

12 V DC, 0.5 A

#### Power consumption

Approx. 6 W

#### Operating temperature

0 °C to 35 °C (32 °F to 95 °F)  
Recommended: 20 °C to 30 °C (68 °F to 86 °F)

#### Operating humidity

0% to 90% (no condensation)

#### Storage/transport temperature

- 10°C to + 40°C (14°F to 104°F)

#### Storage/transport humidity

0% to 90%

#### Operating/storage/transport pressure

700 hPa to 1060 hPa

#### Mass

Approx. 2.1 kg (4 lb 10 oz)

#### Supplied accessories

AC adapter (For the model name, see the plate on the AC adapter.) (1)  
AC power cord (1)  
Rack mount brackets (2)  
Rack mount bracket attachment screws (4)  
Function labels (2)  
DC-cord secure connection attachment (1)  
DC-cord secure connection screw (1)  
Before Using This Unit (1)  
European Representative (1)

Design and specifications are subject to change without notice.

#### Notes

- Always make a test recording, and verify that it was recorded successfully.  
SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.
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- SONY WILL NOT BE LIABLE FOR THE TERMINATION OR DISCONTINUATION OF ANY SERVICES RELATED TO THIS UNIT THAT MAY RESULT DUE TO CIRCUMSTANCES OF ANY KIND.

Depending on the operating environment, unauthorized third parties on the network may be able to access the unit. When connecting the unit to the network, be sure to confirm that the network is protected securely.

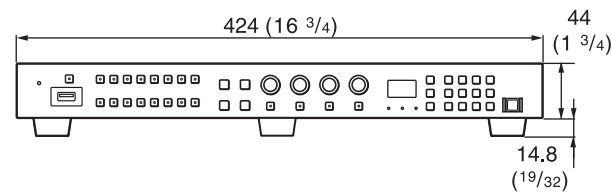
If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND RESULTING FROM A FAILURE TO IMPLEMENT PROPER SECURITY MEASURES ON TRANSMISSION DEVICES, UNAVOIDABLE DATA LEAKS RESULTING FROM TRANSMISSION SPECIFICATIONS, OR SECURITY PROBLEMS OF ANY KIND.

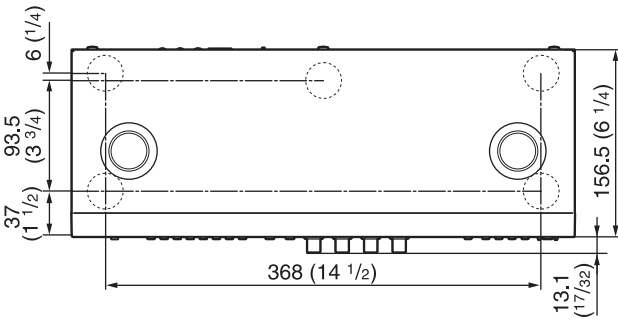
# Dimensions

Unit: mm (inches)

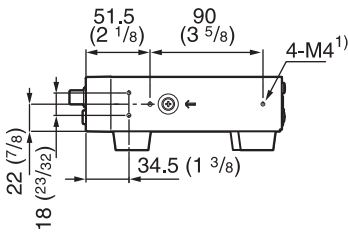
## Front



## Top



## Side



- 1) When using this hole, use a screw which can be inserted into the unit to a depth of 6 to 9 mm (1/4 to 3/8 inches).

