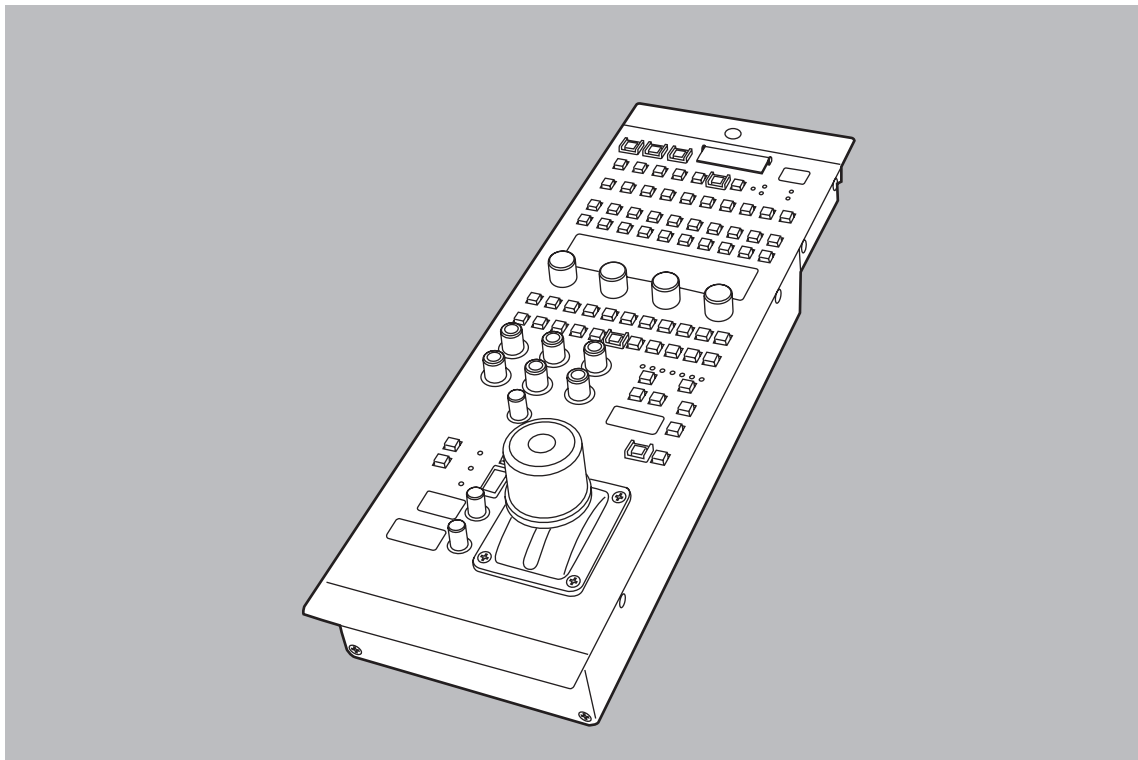


# Operating Instructions

Remote Operation Panel



AK-HRP931P



**Panasonic**<sup>®</sup>

Before attempting to connect, operate or adjust this product, please read these instructions completely.

# Safety precautions

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

For CANADA

**This class A digital apparatus complies with Canadian ICES-003.**

**Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.**

## FCC Note:

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

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

## WARNING:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

## CAUTION:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES.**

 indicates safety information.

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## Overview

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- This remote operation panel (ROP) is used to control a multi-format camera (AK-HC931P) and a camera control unit (CCU). An optical fiber cable is used to connect the multi-format camera and CCU, and a dedicated multi-cable (optional accessory) is used to connect the ROP and CCU.
- When the designated multi-cable is used to connect the ROP and CCU, the distance between these two components can be extended to a maximum of 50 meters.

## Accessories

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Mounting screws (M4, 8 mm) ..... ×2

# ***Operating precautions***

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- **The panel's power is supplied from the camera control unit (AK-HCU931P).**
- **Handle the panel carefully.**  
Dropping the panel or subjecting it to strong impact may cause malfunctioning and failures.
- **Operate the panel within a temperature range of 32 °F to 104 °F (0 °C to 40 °C).**  
Operation in locations below 32 °F or above 104 °F may adversely affect the internal parts.
- **Turn off the power before connecting or disconnecting the cables.**
- **Do not use the ROP outdoors.**
- **Maintenance**  
Disconnect the multi-cable, and wipe the panels with a dry cloth. To remove stubborn dirt, soak a cloth in some diluted kitchen detergent and wring it out well, and then wipe the panels gently.

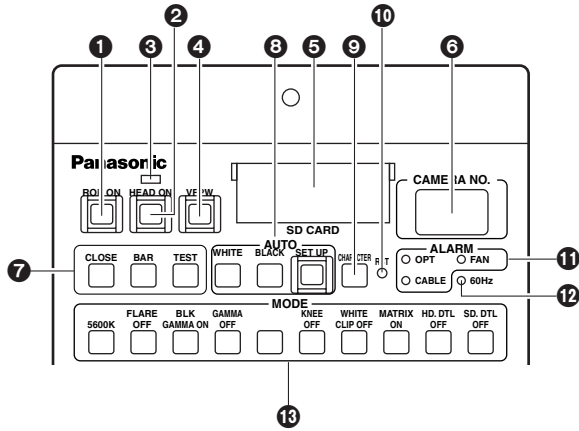
## **<Caution>**

- **Avoid using benzine, paint thinners and other volatile substances.**
- **If a chemically treated cleaning cloth is to be used, read the precautions for its use carefully.**

# Parts and their functions

## ROP operation panel

When any of the panel switches is pressed, the buzzer sounds. However, the buzzer does not sound when the panel's ON switch lamp is off or when BUZZ OFF has been selected on the FUNC menu.



### 1 ROP ON switch

This switch enables the controls on the ROP's operation panel to be operated. Its lamp lights as soon as the CCU power is turned on.

**Lighted:** The lamp of the switch lights when the CCU power is turned on. When communication with the camera is enabled, the settings at which the panel's switches are selected are established. The panel is set on the basis of the camera setting information also immediately after the ROP ON switch is pressed and its lamp is lighted. However, if it is judged that communication with the camera has been cut off, the setting at which the panel's switches are selected will not be established, and the ROP ON switch lamp will remain lighted.

**Off:** The lamp turns off and the panel's operations are cancelled (protected status) when this switch is pressed (while its lamp is lighted) while the CCU's power and the camera's power is ON. However, even when the ROP ON switch lamp is off, the panel's GAIN, FLARE and DTL controls can be operated provided that the active indicator is lighted. It is also possible to operate the iris close switch irrespective of the ROP ON switch setting provided that communication with the camera is enabled.

### 2 Camera power switch [HEAD ON]

This switch enables the panel to be used to operate the camera's power by remote control. However, this function will not work unless both the CCU's camera power switch and the power switch on the camera itself are at the ON position.

Each time the switch is pressed, the status alternates between ON (power ON: LED lighted) and OFF (power OFF: LED off).

### 3 Camera power switch indicator

This indicates whether the camera power is ON or OFF.

**Lights up green:** The panel is communicating with the camera.

**Lights up red:** The panel is not communicating with the camera.

**Flashes red:** POWER OFF status established by software.

### 4 VF power OFF switch [VF OFF]

This is the camera VF power switch for exercising remote control from the panel. It lights when the switch is in the ON position. Each time the switch is pressed, the status alternates between ON (power ON) and OFF (power OFF).

### 5 SD card slot

This is where the SD cards are inserted. The data of the camera and CCU can be saved on these cards and then called.

### 6 Camera number indicator [CAMERA NO.]

This indicates the camera number information. If the camera number is not indicated, "—" appears instead.

### 7 Camera video output selector switch [CLOSE/BAR/ TEST]

This is used to select the camera video signals which are to be output from the CCU's rear panel. The camera video signal, color bar display signal or test display signal is selected by pressing the BAR switch and/or TEST switch.

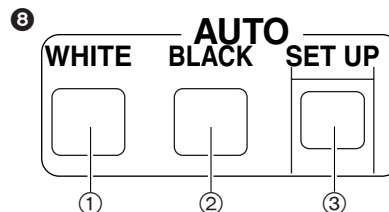
**Both BAR and TEST switch lamps off:**

Camera video output

**BAR switch lamp lighted:** Color bar signal output

**TEST switch lamp lighted:** Test signal output

**CLOSE switch lamp lighted:** Lens closed status with camera video output



### 1 Auto white balance switch [AUTO WHITE]

This is used to automatically adjust the white balance.

**Lighted:** This indicates that the automatic white balance adjustment has started.

**Flashing:** This indicates that the automatic white balance adjustment ended without being completed.

**Off:** This indicates that the automatic white balance adjustment was completed correctly.

# Parts and their functions

## ② Auto black balance switch [AUTO BLACK]

This is used to automatically adjust the black balance.

**Lighted:** This indicates that the automatic black balance adjustment has started.

**Flashing:** This indicates that the automatic black balance adjustment ended without being completed.

**Off:** This indicates that the automatic black balance adjustment was completed correctly.

## ③ Auto setup switch [AUTO SET UP]

This is used to perform auto setup. The setup status is output to PM each time.

The mode settings are performed using AUTO SETUP MODE on the FUNC menu.

**OUTSIDE FULL:** Standard setup based on the external shooting chart is performed.

**OUTSIDE EASY:** Simplified setup based on the external shooting chart is performed.

In either OUTSIDE mode, align the position of the 4:3 gray scale (GS-3) wedge with the position of the 4:3 marker.

Depending on the chart setting conditions, auto setup may not go smoothly. For this reason, attention must be paid to how the chart is set.

### Auto setup methods

**Lighted:** This indicates that the auto setup has started.

#### Flashing at 1 sec intervals:

This indicates that the auto setup ended without being completed.

#### Flashing at 2 sec intervals:

When the AUTO SET UP switch is pressed while the indicator is off, the auto setup start preparation mode is established, and a square marker appears in the center of the camera's viewfinder. Roughly align this square with the white at the gray scale center. Auto setup now starts when the side switch is pressed. If the switch is pressed for 1 or more seconds, auto setup is canceled.

**Off:** This indicates that the auto setup was completed correctly.

### <Note>

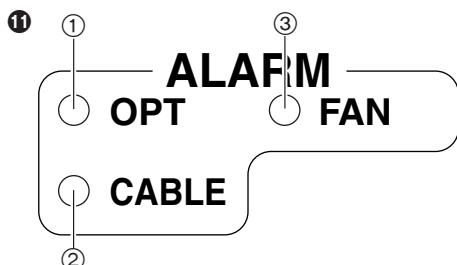
During the auto setup operation, the operation status is displayed using characters on the PM.

## ⑨ PM character display switch [CHARACTER]

This is used to set the characters to be displayed on the PM to ON or OFF.

## ⑩ CPU reset switch [RST]

This is used to reset the panel's CPU. Normally, refrain from touching it.



## ① Optical transmission alarm indicator [OPT ALARM]

This is the optical transmission warning indicator.

**Lighted:** The indicator lights when the optical signals received in the transmission between the camera and CCU are too weak or when a CCU optical transmission receiver unit data error has occurred.

If the optical signals received in the transmission between the camera and CCU are too weak, an alarm display appears in character form. Check the optical connector connections and mating.

If the problem persists, turn off the CCU power, disconnect the cable between the camera and CCU, and clean the optical contact area. Use cotton swabs moistened with alcohol to wipe the optical fiber part gently.

**Off:** This indicates that the signals received in the optical transmission are strong enough.

## ② Cable alarm indicator [CABLE ALARM]

This is the camera cable warning indicator.

**Lighted:** This indicates that the camera and CCU are not connected.

If the indicator is lighted all the time, turn off the CCU power, inspect and check the cables and connectors. If it still fails to light, consult your dealer.

**Off:** This indicates that the camera cable has been connected correctly.

## ③ Fan alarm indicator [FAN ALARM]

This indicates that the CCU's fan has stopped or that the camera's fan is OFF.

**Lighted:** The CCU's fan has stopped or the camera's fan is OFF.

**Off:** Both the CCU's fan and the camera's fan are operating normally.

## ⑫ Vertical frequency status indicator [60Hz]

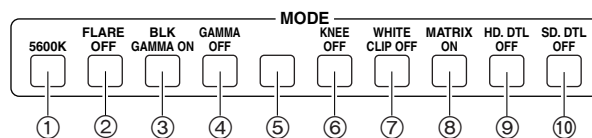
This indicates the vertical frequency status of the camera system. It remains off when the system's operating frequency is 59.94 Hz, but it lights when it is set to 60 Hz.

### <Note>

60Hz operation is not supported at the present time.

## ⑬ MODE ON/OFF switches

These are used to set the camera operation modes. The switches with the lighted lamps are the ones which have been set.



# Parts and their functions

## ① 5600K switch [5600K MODE]

This is used to change the amplification rate of the GBR signals by an electrical circuit to achieve a white balance that corresponds to the color temperature of 5600K. When it is pressed, the B video signal is attenuated by approximately -6 dB, the R video signal is boosted by approximately 3 dB, and the G video signal is not attenuated. Select this switch setting for shooting under a 5600K light source or shooting outdoors.

When the lamp of the switch is off, the white balance is made to correspond to a color temperature of 3200K.

## ② Flare OFF switch [FLARE OFF MODE]

This is used to cancel the flare correction function (which suppresses the rise of the pedestal in proportion to the light quantity). Its lamp lights when the function is canceled.

## ③ Black gamma ON switch [BL-K GAMMA ON MODE]

This is used to enable the black gamma function (which changes the video signal amplification rate in parts where the light quantity is low). Its lamp lights when the function is enabled.

## ④ Gamma OFF switch [GAMMA OFF MODE]

This is used to cancel the gamma correction function (which provides the signal level of the video signals with the reverse characteristics matching the TV video signal input and light-emitting level characteristics). Its lamp lights when the function is canceled.

## ⑤ This switch is not supported at the present time.

## ⑥ Knee OFF switch [KNEE OFF MODE]

This is used to cancel the knee function that attenuates those parts of the video signals where a particular level (knee point) has been exceeded so that they will not become saturated as easily. Its lamp lights when the function is canceled.

## ⑦ White clip OFF switch [WHITE CLIP OFF MODE]

This is used to cancel the white clip function by which the video signal output is clipped (saturated). Its lamp lights when the function is canceled.

## ⑧ Matrix ON switch [MATRIX ON MODE]

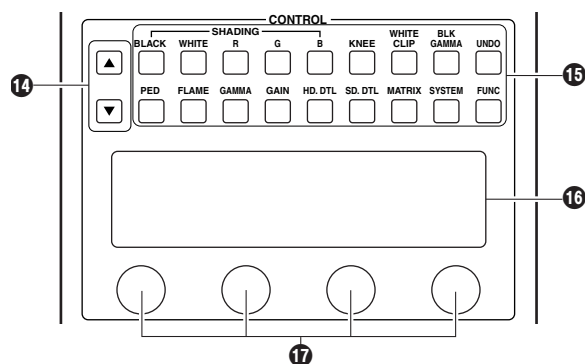
This is used to enable the matrix function by which the chroma saturation is compensated for the G (green), B (blue), R (red), Ye (yellow), Cy (cyan) and Mg (magenta) signals and by which the chroma saturation and hue are compensated for the I (skin tone) signals. Its lamp lights when the function is enabled.

## ⑨ HDTV detail OFF switch [HD.DTL OFF MODE]

This is used to cancel the detail enhancer function that enhances (adjusts the relative hardness/softness) of the picture quality in the detailed parts of the HDTV video output. Its lamp lights when the function is canceled.

## ⑩ SDTV detail OFF switch [SD.DTL OFF MODE]

This is used to cancel the detail enhancer function that enhances (adjusts the relative hardness/softness) of the picture quality in the detailed parts of the SDTV video output. Its lamp lights when the function is canceled.

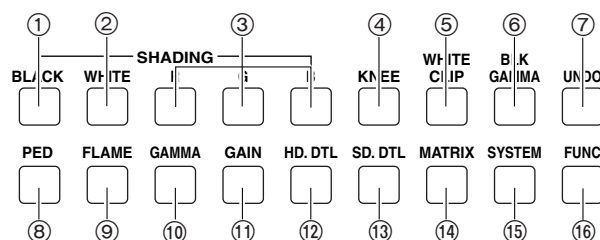


## ⑭ Adjustment item up and down shift switches [▲, ▼]

These are used to scroll the control item display indicated by one of the control item selector switches ⑮ up or down.

## ⑮ Control item selector switches

When these switches are selected (when their lamps are lighted), the corresponding adjustment items and adjustment values appear on the LCD display. The adjustment values can be changed by one of the 16 adjustment rotary encoders.



## ① Black shading control switch [BLACK SHADING CONTROL]

This is used to correct the black shading (the coloring of black images.) When it is pressed and its lamp is lighted and when one of the SHADING R, B or B switches is then pressed and selected, the adjustment items for the black shading appear on the LCD display. The black shading correction can be adjusted using four of the 16 adjustment rotary encoders.

HSAW	HPAR	VSAW	VPAR
-100	-49	0	+7

### HSAW: Horizontal sawtooth wave correction

This is used to correct the coloring of black screen images in the horizontal direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the left of the screen is increased.

### HPAR: Horizontal parabola correction

This is used to correct the coloring of black screen images in the horizontal direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the left and right of the screen is increased.

### VSAW: Vertical sawtooth wave correction

This is used to correct the coloring of black screen images in the vertical direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the top of the screen is increased.

# Parts and their functions

## VPAR: Vertical parabola correction

This is used to correct the coloring of black screen images in the vertical direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the top and bottom of the screen is increased.

## ② White shading control switch

### [WHITE SHADING CONTROL]

This is used to correct the white shading. When it is pressed and its lamp is lighted and when one of the SHADING R, B or B switches is pressed and selected, the adjustment items for the white shading appear on the LCD display. The white shading correction can be adjusted using four of the 16 adjustment rotary encoders.

HSAW	HPAR	VSAW	VPAR
-100	-49	0	+7

## HS AW: Horizontal sawtooth wave correction

This is used to correct the coloring of white screen images in the horizontal direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the left of the screen is increased.

## HPAR: Horizontal parabola correction

This is used to correct the coloring of white screen images in the horizontal direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the left and right of the screen is increased.

## VSAW: Vertical sawtooth wave correction

This is used to correct the coloring of white screen images in the vertical direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the top of the screen is increased.

## VPAR: Vertical parabola correction

This is used to correct the coloring of white screen images in the vertical direction in the range of -100 to 100. When the numerical setting is incremented, the video level at the top and bottom of the screen is increased.

## ③ R, G, B shading switches [R, G, B]

These are used to select the video signals targeted for black and white shading correction from among the R, G and B signals. The lamp of the selected switch lights.

## ④ Knee control switch [KNEE CONTROL]

This is selected to adjust the knee slope and knee point. When it is selected, its lamp lights. The menu is two-tiered: the adjustment items for the knee point are displayed on the first tier, and the adjustment items for the knee slope appear on the second tier. With auto knee, only the knee point can be adjusted.

RPNT	MPNT	BPNT
-1%	95%	+1%
RSLP	MSLP	BSLP
-32	31	+1

## MPNT

This adjusts the master knee point in the range of 110% to 80%.

## RPNT, BPNT

These adjust the R and B knee points in the range of +20% to -20%.

## MSLP

This adjusts the master knee slope in the range of 0 to 199.

## RSLP, BSLP

These adjust the R and B knee slopes in the range of +31 to -31.

## ⑤ White clip control switch [WHITE CLIP CONTROL]

This is selected to change the white clip level. When it is selected, its lamp lights.

CLIP
108%

CLIP: This adjusts the white clip in the range of 80% to 109%.

## ⑥ Black gamma control switch [BKL GAMMA CONTROL]

This is selected to adjust the black gamma curve. When it is selected, its lamp lights.

BLKR	BLKM	BLKB
-32	0	+7

## BLKR, BLKM, BLKB GAM

These adjust the black gamma curve (R, MASTER or B) in the range of -32 (black compression) to +32 (black expansion).

## ⑦ Undo switch [UNDO]

When the control data displayed using the control item selector switches has been changed, this switch is used to cancel changed data and return to the data first shown on the screen.

## ⑧ Pedestal control switch [PED CONTROL]

This is selected to adjust the R,G and B pedestal levels. When it is selected, its lamp lights.

RPED	GPED	BPED
-100	0	0

## GPED, RPED, BPED: G, R, B pedestal level

These indicate the increases or decreases in the pedestal levels in the range of -800 to +800 as referenced to the pedestal position where the black balance was attained. After the black balance is adjusted, 0 is set as the adjustment value.



# Parts and their functions

## ⑨ Flare control switch [FLARE CONTROL]

This is selected to change the amount of flare correction. When it is selected, its lamp lights.

RFLR	GFLR	BFLR
10	49	0

### RFLR, GFLR, BFLR

These adjust the R, G or B flare in the range of -100 to +100, and at 0 the flare correction operation is turned off.

## ⑩ Gamma curve control switch [GAMMA CONTROL]

This is selected to adjust the gamma correction. When it is selected, its lamp lights.

Since the M GAM adjustment value is independent of the R and B GAM adjustment values, the R and B GAM values remain unchanged even when M GAM is changed.

RGAM	GGAM	BGAM
-50	0.450	+7

### M GAM: Master gamma

Adjustment range: 0.600 to 0.300

### RGAM, BGAM: R, B gamma

Adjustment range: -75 to +75

RGAM and BGAM adjust the gamma correction as referenced to the M GAM setting. The control range extends from GAMMA 0.600 to 0.300 and this value is displayed as the adjustment value -75 to +75. When turned clockwise, GAMMA 0.300 (adjustment value +75) is approached.

## ⑪ Gain control switch [GAIN CONTROL]

This is selected to adjust the white balance. When it is selected, its lamp lights.

RGAN	GGAN	BGAN
-100	+49	0

### G GAIN

This sets the amount by which the G gain setting is to be increased or decreased from its reference in the range of -800 to +800.

### R GAIN, B GAIN

These set the amount by which the R or B gain is to be increased or decreased as referenced to their amounts at the pedestal position where the white balance was attained in the range of -800 to +800. After the white balance is adjusted, 0 is set as the adjustment value.

## ⑫ HDTV detail control switch [HD.DTL]

This switch is selected to change the amount by which the picture quality in the detailed parts of the HDTV video output has been enhanced (by which the relative hardness/softness has been adjusted). When it is selected, its lamp lights.

VDTL	HDTL	CRSP	PEAK
0	0	0	4
LDP	DARK		
10%	2		
CORNER	SRC	+CLP	-CLP
20	G	0	0
+KNE	-KNE		
0	0		
KDTL	CRSP	FREQ	
0	0	3	
+CLP	-CLP	+KNE	-KNE
0	0	3	
SKIN_DTL	SKIN_LVL		
ON	LOW		
ZEB	PHAS	WIDTH	CRSP
ON	123	15	2

### VDTL: Vertical detail level

This is used to adjust the amount of vertical detail.

### HDTL: Horizontal detail level

This is used to adjust the amount of horizontal detail.

### CRSP: Crisp

This is used to set the maximum amplitude of the very faint noise components which are removed from the detail components.

### PEAK: Peak frequency

This is used to select the contour correction frequency band (boost frequency or peak frequency).

### LDP: Level depend

This function removes the detail in the dark parts by means of a coefficient dependent upon the video signal level so that the dark parts will not appear unnatural.

### DARK: Dark detail

This function boosts the detail in the dark parts.

### CORNER: Corner detail

This function boosts the detail around the edges of the screen.

### SRC: Detail source

This is used to select the source signals for creating the detail components.

### +CLP: Detail edge overshoot clip

This is used to limit the length of the overshoot parts of the detail edge components.

# Parts and their functions

## -CLP: Detail edge undershoot clip

This is used to limit the length of the undershoot parts of the detail edge components.

## +KNE: Detail edge overshoot knee

This function applies the knee to the detail edge overshoot parts.

## -KNE: Detail edge undershoot knee

This function applies the knee to the detail edge undershoot parts.

## KDTL: Knee detail

This is used to boost detail components of the parts where the knee has been applied.

## CRSP: Knee detail crisp

This is used to remove the very faint noise components below the level set from the knee detail components.

## FREQ: Knee detail boost frequency

This is used to select the knee detail boost frequency.

## +CLP: Knee detail edge overshoot clip

This is used to limit the length of the overshoot parts of the knee detail edge components.

## -CLP: Knee detail edge undershoot clip

This is used to limit the length of the undershoot parts of the knee detail edge components.

## +KNE: Knee detail edge overshoot knee

This function applies the knee to the knee detail edge overshoot parts.

## -KNE: Knee detail edge undershoot knee

This function applies the knee to the knee detail edge undershoot parts.

## SKIN\_DTL: Skin tone detail

This is used to set the skin tone detail function to ON or OFF.

## SKIN\_LVL: skin tone detail level

This is used to set the chroma saturation of the parts where the skin tone detail is applied.

## FZEB: Skin tone area zebra

This is used to set whether or not to apply zebra to the areas where coring is applied as the skin tones to the Y signals in the PM output.

## PHAS: Skin tone area phase

This is used to move the areas recognized as the skin tones in the range of 153 to 93 along the Q axis on the color vector display.

## WIDTH: Skin tone area width

This is used to widen the areas recognized as the skin tones in the range of 1 to 20 along the I axis on the color vector display.

## CRSP: Skin tone detail crisp

This is used to remove the very faint noise components below the level set from the skin tone detail components.

## ⑬ SDTV detail control switches [SD.DTL CONTROL]

This switch is selected to change the amount by which the picture quality in the detailed parts of the SDTV video output has been enhanced (by which the relative hardness/softness has been adjusted). When it is selected, its lamp lights.

VDTL	HDTL	CRSP	
0	0	0	
PEAK1	PEAK2		
1	2		
LDP	DARK		
10%	2		
CORNER	SRC	+CLP	-CLP
3	G	0	0
KNEE	CRM	CRSP	CRED
0	0	0	0
SKIN DTL	SKIN_LVL		
ON	LOW		
ZEB	PHAS	WIDTH	CRSP
ON	123	15	2

## VDTL: Vertical detail level

This is used to adjust the amount of vertical detail.

## HDTL: Horizontal detail level

This is used to adjust the amount of horizontal detail.

## CRSP: Crisp

This is used to set the maximum amplitude of the very faint noise components which are to be removed from the detail components.

## PEAK1: Peak frequency

This is used to select one of the two contour correction frequency bands.

## PEAK2: Peak frequency

This is used to select one of the two contour correction frequency bands.

## LDP: Level depend

This function removes the detail in the dark parts by means of a coefficient dependent upon the video signal level so that the dark parts will not appear unnatural.

## DARK: Dark detail

This function boosts the detail in the dark parts.

## CORNER: Corner detail

This function boosts the detail around the edges of the screen.

## SRC: Detail source

This is used to select the source signals for creating the detail components.

# Parts and their functions

## +CLP: Detail edge overshoot clip

This is used to limit the length of the overshoot parts of the detail edge components.

## -CLP: Detail edge undershoot clip

This is used to limit the length of the undershoot parts of the detail edge components.

## KNEE: Detail edge knee

This function applies the knee to the detail edge parts.

## CRM: Chroma detail

This function boosts the detail in the high chroma saturation.

## CRSP: Chroma detail crisp

This is used to remove the very faint noise components below the level set from the chroma detail components.

## CRED: Chroma detail reduce

This is used to suppress the chroma detail edge.

## SKIN\_DTL: Skin tone detail

This is used to set the skin tone detail function to ON or OFF.

## SKIN\_LVL: Skin tone detail level

This is used to set the chroma saturation of the parts where the skin tone detail is applied.

## ZEB: Skin tone area zebra

This is used to set whether or not to apply zebra to the areas where coring is applied as the skin tones to the Y signals in the PM output.

## PHAS: Skin tone area phase

This is used to move the areas recognized as the skin tones in the range of 153 to 93 along the Q axis on the color vector display.

## WIDTH: Skin tone area width

This is used to widen the areas recognized as the skin tones in the range of 1 to 20 along the I axis on the color vector display.

## CRSP: Skin tone detail crisp

This is used to remove the very faint noise components below the level set from the skin tone detail components.

## ⑭ Matrix control switch [MATRIX CONTROL]

This is pressed to change the correction amounts for the R-G, R-B, G-R, G-B, B-R and B-G chroma saturation.

R - G	R - B	G - R	G - B
-10	0	+1	+10
B - R	B - G		
0	0		
MTX 12		GAIN	PHASE
Cy_B		0	0

## MTX 12, GAIN, PHASE

These are used to select the following 12-axis matrix adjustment items: G, G\_Cy, Cy, Cy\_B, B, B\_Mg, Mg, Mg\_R, R, R\_Ye, Ye and Ye\_G.

## GAIN

This is used to adjust the chroma saturation (gain) of the items set using MTX 12 in the range of -127 to +127.

## PHASE

This is used to adjust the phase of the items set using MTX 12 in the range of -127 to +127.

## ⑮ SYSTEM

HEAD OPT LEVEL		■■■■■	
CCU OPT LEVEL		■■■■■	
RET1	RET2	RET3	RET4
HSDI1	HSDI2	HSDI3	HSDI4
DCMD	UCMD	DCLK	UCLK
SP	SP	ON	ON
HBAR	SBAR	PATHO	SET
ARIB	SMPT	OFF	7.5%
SDI4		MSEL	MLINK
PM		MIX	ON
ANLG	O_SEL	SYNC	TYPE
SD	RGB	ON	TRI
H_CO	HFIN	(HDTV)	
99	123		
H_CO	HFIN	(SDTV)	
99	123		
SCCO	SCFIN	(SDTV)	
7	30		
SH_H	SH_V		
0	90H		
VER			

## HEAD, CCU OPT LEVEL: Camera, CCU light reception strength level

These indicate the light reception strength margins of the camera head and CCU.

## RET1, RET2, RET3, RET4: Return video settings

These are used to set the input allocations of the return signals.

## DCMD: Down-conversion system selection

This is used to select the down-conversion system.

## UCMD: Up-conversion system selection

This is used to select the up-conversion system.

# Parts and their functions

## DCLK: Down-conversion link

This is used to decide whether to go with the down-conversion system control based on the AUX external input or set the down-conversion independently.

## UCLK: Up-conversion link

This is used to decide whether to go with the up-conversion system control that is linked to the down-conversion system or set the up-conversion independently.

## PATHO: Pathological pattern output

This is used to forcibly output the pathological pattern.

## SET: Color bar setup setting

This is used to set the color bar setup.

## SD14: HD SD14 output selection

This is used to set the HD SD14 output of the CCU as the PM or normal output.

## MSEL: Monitor switch selection setting

This is used to set the monitor switch selection to PM, WFM or the PM-WFM link mode.

## MLINK: Shading link setting

This is used to set whether to link the monitor when the R, B or G shading switch has been selected.

## ANLG: CCU analog output setting

This is used to set the analog output of the CCU to the HD or SD component.

## O\_SEL: Output select

This is used to set the analog output of the CCU to RGB or YPbPr.

## SYNC: Sync waveform addition setting

This is used to select whether to add the sync waveform to the analog output.

## TYPE: Analog sync phase coarse adjustment

This is used to set the sync waveform to be added to the HD analog output to binary or tri-level.

## H\_CO (HDTV): Horizontal sync signal phase coarse adjustment

This is used to coarsely adjust the phase in relation to the HDTV genlock sync signal.

## H\_FIN (HDTV): Horizontal sync signal phase fine adjustment

This is used to finely adjust the phase in relation to the HDTV genlock sync signal.

## H\_CO (SDTV): Horizontal sync signal phase coarse adjustment

This is used to coarsely adjust the phase in relation to the SDTV genlock sync signal.

## H\_FIN (SDTV): Horizontal sync signal phase fine adjustment

This is used to finely adjust the phase in relation to the SDTV genlock sync signal.

## SCCO (SDTV): Subcarrier phase coarse adjustment

This is used to coarsely adjust the phase of the subcarrier signal in relation to the SDTV genlock sync signal.

## SCFIN (SDTV): Subcarrier phase fine adjustment

This is used to finely adjust the phase of the subcarrier signal in relation to the SDTV genlock sync signal.

## SH\_H: SD/HD horizontal phase

This is used to adjust the horizontal phase of the SDTV output and HDTV output.

## SH\_V: SD/HD vertical phase

This is used to set the vertical phase of the SDTV output and HDTV output to line 0 and line 90 (advanced by 90H for HDTV).

## VER: ROP software version

This indicates the software version of this unit.

## ⑮ FUNC control switch

ALC	SPED	WNDW	PEAK
0	0	1	4
POWER ON	SPEED LOW	( FAN )	
2D - M OFF	2D - E OFF	COMB LOW	
AUTO SETUP MODE			
OUTSIDE FULL			
MPED 3%	FSEL FCTRY		
BRIGHT 2	CONT 30		
DTL ON	CAMNO 1		
BUZZ SD		BLACK ( PAINT ) FLR	
<CARD>	MODE		EXE

## ALC: Auto iris level

This is used to adjust the auto iris level of the lens.

## SPED: Auto iris speed

This is used to set the feedback speed of the auto iris.

## WNDW: Auto iris window

This is used to set the image detection area window of the auto iris.

## PEAK: Peak/average setting

This is used to set the ratio between the average and peak values of the auto iris image detection.

# Parts and their functions

## POWER (FAN): Fan power switch

This is used to set the power of the camera head's fan to ON, OFF, or AUTO.

## SPEED (FAN): Fan speed

This is used to set the speed of the camera head's fan.

## 2D-M: Component 2-dimensional low-pass filter

This is used to set whether to apply the 2-dimensional low-pass filter to the SDTV component output.

## 2D-E: Composite 2-dimensional low-pass filter

This is used to set whether to apply the 2-dimensional low-pass filter to the SDTV composite output.

## COMB: Comb filter mode

This is used to set the comb filter mode.

## AUTO SETUP MODE: Auto setup mode setting

This is used to select the auto setup mode setting.

## MPED: Auto setup MPED convergence value

This is used to set the position where the master pedestal is to be converged when auto setup has been started.

## FSEL: File select

This is used to select the file attribute to be referenced when auto setup has been started.

## BRIGHT: Dot matrix display brightness setting

This is used to set the brightness of the dot matrix display.

## CONT: LCD display contrast setting

This is used to set the LCD display contrast.

## BUZZ: ROP buzzer setting

This is used to set the panel's buzzer to ON or OFF.

## CAMNO: Camera number setting

This is used to set the number of the camera to which this unit is connected.

## DTL (PAINT): DTL control mode

This is used to set the paint control DTL to SD or HD.

## BLACK (PAINT): BLACK control mode

This is used to set the paint control BLACK to be used with the flare, pedestal or gamma.

## <CARD>: SD card read/write setting

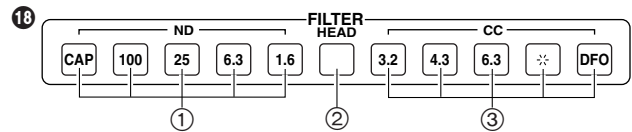
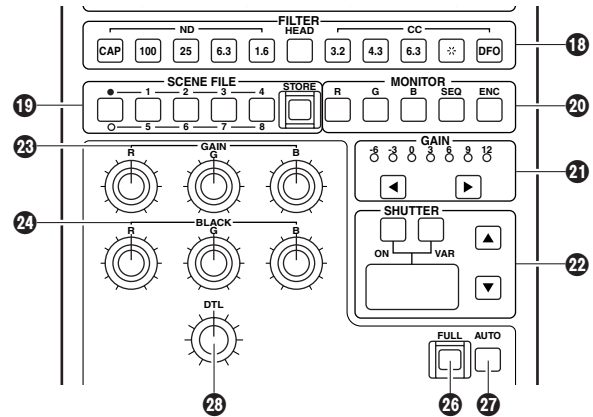
This is used to write the camera's data on the SD card or read it from the card.

## 16 LCD display

This shows the adjustment items and adjustment values when the control item selector switches 15 have been selected.

## 17 Adjustment rotary encoders

These enable the data of the adjustment items shown on the LCD display 16 to be changed.



### 1 ND filter switches [ND FILTER 1, 2, 3, 4, 5]

These are the ND filter selector switches. The filter setting can be changed when the HEAD switch lamp is off.

**ND1:** Cap

**ND2:** Through (green light emitted)

**ND3:** 1/4

**ND4:** 1/16

**ND5:** 1/32

### 2 HEAD switch [HEAD FILTER]

This is used to switch the control over the filter to the camera head. Its lamp lights when filter control by the camera head is enabled, and it goes off when filter control by this panel or MSU is enabled.

The lamps of the HEAD switches on this panel and MSU will light also when the LOCAL switch on the operation panel at the back of the studio camera has been pressed and its lamp is lighted.

### 3 CC filter switches [CC FILTER A, B, C, D, E]

These are the CC filter selector switches. The filter setting can be changed when the HEAD switch lamp is off.

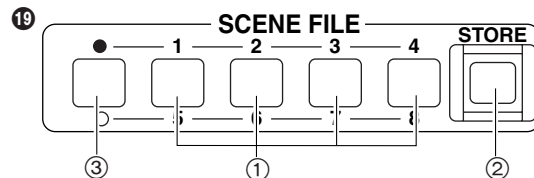
**CCA:** 3200K (green light emitted)

**CCB:** 4300K

**CCC:** 6300K

**CDD:** Cross

**CCE:** DF0



### 1 Scene file switches [SCENE FILE 1 to 8]

These enable the camera settings for each scene or the data in the adjustment data that can be transferred to another camera to be saved in or called from eight files that serve as scene files.

# Parts and their functions

## Calling scene file data

1. From among the 1 to 8 scene file switches, press the number of the switch that corresponds to the scene file which is to be called and light its lamp.
2. The scene file is now read. The data read from the scene file is input into the current file and then output.
3. When the scene file is read, the data left in the current file until that moment is temporarily saved. The lamp of the scene file switch remains lighted even after the data has been called.

To stop calling the scene file, press the scene file switch with the lighted lamp and turn its lamp off. The data that was temporarily saved before the scene file was called is now returned to the current file as the setting information, and the setting statuses established prior to the scene file call are also restored.

If a scene file switch other than the one with the lighted lamp is pressed and its lamp is lighted, the scene file corresponding to the number of the scene file switch with the now lighted lamp is called.

## ② Scene file storage switch [SCENE FILE STORE]

This is pressed to store setting or adjustment data as scene files.

## Saving the current file as a scene file

1. When the scene file storage switch is pressed, its lamp lights up.
2. When the switch with the number of the scene file in which the data is to be saved is pressed and its lamp is lighted, the saving of the current file starts and, upon completion, the lamp of the scene file storage switch goes off.

## ③ Scene file selector switch [SCENE 1-4/5-8 SELECT]

## ⑳ Monitor selector switches

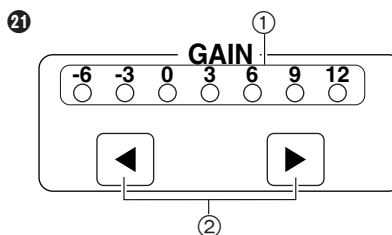
### [R, G, B, SEQ, ENC MONITOR]

These are used to select what is to be displayed on the waveform monitor (WFM) and picture monitor.

The output mode can be changed by selecting the MSEL and MLINK settings on the fourth tier of the SYSTEM screen. If MLINK is set to ON when BLACK SHADING and WHITE SHADING are to be adjusted, the monitor display is also switched temporarily in linkage with the R, G and B shading switches.

Monitor selector switch	HDTV		SDTV	
	Y/-G	P-M	Y/-G	P-M
R	R	R	R	R
G	G	G	G	G
B	B	B	B	B
SEQ	RGB	Y	RGB	Y/-G
ENC	RGB	Y	VBS	VBS

The R, G and B switches can be selected simultaneously. The RGB outputs on the WFM display are shown as a parade display.



### ① Gain selection status display [GAIN display]

This displays the video input sensitivity gain.

**-6 dB:** The input sensitivity is increased by -6 dB.

**-3 dB:** The input sensitivity is increased by -3 dB.

**0 dB:** The input sensitivity is increased by 0 dB (standard setting).

**3 dB:** The input sensitivity is increased by 3 dB.

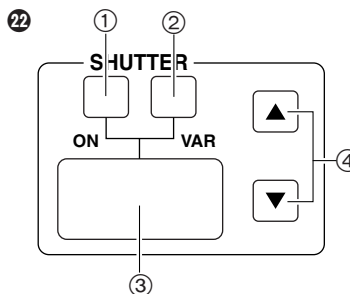
**6 dB:** The input sensitivity is increased by 6 dB.

**9 dB:** The input sensitivity is increased by 9 dB.

**12 dB:** The input sensitivity is increased by 12 dB.

### ② Gain setting increment, decrement switches (◀, ▶)

These are used to set the gain selection.



### ① Shutter switch [SHTR ON]

This is used to set the electronic shutter mode or V.RES mode, which has already been set, to ON or OFF. When it is selected, its lamp lights. The 4-digit LED display shows the reciprocal of the shutter value (CCD charge storage time) or the V.RES mode.

### ② Shutter mode selector switch [VAR]

This is used to select the step electronic shutter mode or the continuously variable shutter mode. Its lamp lights up when the continuously variable shutter mode has been selected.

### ③ Shutter/V.RES display

In the electronic shutter mode, this indicates the reciprocal of the shutter value; in the vertical high resolution mode, it indicates the resolution steps (11 to 19).

### ④ Increment, decrement switches [▲, ▼]

These are used to change the 4-digit LED display data in the electronic mode or V.RES mode.

If ▼ is pressed in the V.RES mode, the data appears when "100" is shown as the shutter value on the shutter/V.RES display.

# Parts and their functions

## 23 R, G, B gain controls [R, G, B GAIN]

These are used for the red (R), green (G) and blue (B) adjustments of the white balance. When the auto white balance can be performed and the R, G or B gain control is turned, the gain control value on the LCD display changes.

## 24 R, G, B black controls [R, G, B FLARE]

Whether these controls are to be used to adjust the flare or pedestal can be set on the menu. They are used for the red (R), green (G) and blue (B) black adjustments. When the auto black balance can be performed and the R, G or B black control is turned, the flare or pedestal control value on the LCD display changes.

## 25 DTL control [DTL]

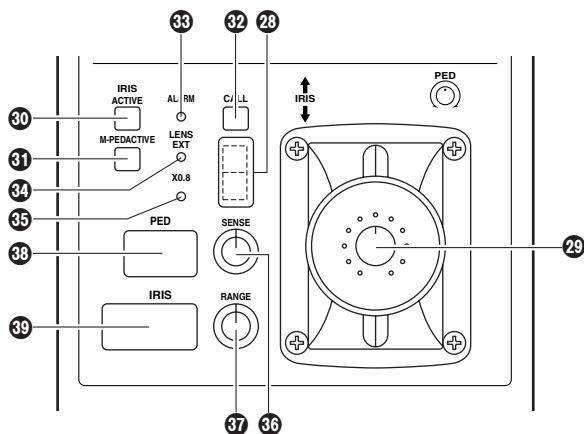
This is used to increment or decrement (paint) the detail control settings (H-DTL and V-DTL adjustment values which are set on this panel's LCD display).  
By setting this panel's DTL HD and SD switches, the effect of the DTL control can be applied to the HDTV video output or SDTV video output.

## 26 Iris joystick control range selector switch [FULL]

This is used to set the control range of the iris joystick to FULL (when the switch lamp is lighted: from open to close). When the switch lamp is off, the control range of the SENSE control 36 is used for control.

## 27 Auto iris switch [AUTO]

This is used to activate the auto iris function. Its lamp lights in the auto iris mode.  
When the lamp is off, use the Iris/master pedestal control joystick 29 to control the lens iris.



## 28 Tally indicators

The red tally indicator is at the top and the green tally indicator is at the bottom. They light when the respective tally signals are input to the INCOM/tally connector on the CCU.

## 29 Iris/master pedestal control joystick [IRIS/PED]

The iris level of the lens is adjusted by moving the joystick up and down, and the master pedestal is adjusted by turning it.

### When in the auto iris mode:

The iris can be adjusted manually.

### When not in the auto iris mode:

The auto iris level is adjusted.

Since the master pedestal adjustment is independent of the R, G and B pedestal adjustments, the R, G and B pedestal adjustment values remain unchanged even when the master pedestal is changed.

## 30 Iris active switch [IRIS ACTIVE]

This makes it possible to adjust the iris. When its lamp is off, the iris cannot be controlled from this panel. If the switch is set to ON and the iris priority is returned to this panel, the panel can then exercise iris control.

## 31 Master pedestal active switch [M-PED ACTIVE]

This is used to activate the master pedestal control functions of the joystick. Its lamp lights when the functions are activated.

## 32 Call switch [CALL]

This is pressed to call the camera. While it is held down, the lamp of the camera's call switch lights and the buzzer sounds. After the switch is released, the buzzer stops.  
If the call switch on the camera has been pressed, the lamp of this switch remains lighted while that switch is held down.

## 33 Alarm display [ALARM]

This lights when optical transmission is not going satisfactorily or when a problem has occurred in the camera, CCU fan or power supply.

## 34 Lens extender display [LENS EXT]

This lights when the setting of the lens extender is other than 1x.

**Lighted:** The setting of the lens extender is other than 1x.

**Off:** This indicates that the lens extender is not being used or that the extender function is not available.

## 35 Lens ratio effect [x0.8]

This lights when the cross converter is inserted into the lens.

## 36 Iris sensitivity control [SENSE]

This is used to adjust the iris control range of the joystick.

## 37 Iris control range control [RANGE]

This is used to adjust the iris control position (shift the control range) of the joystick.

## 38 Master pedestal level indicator

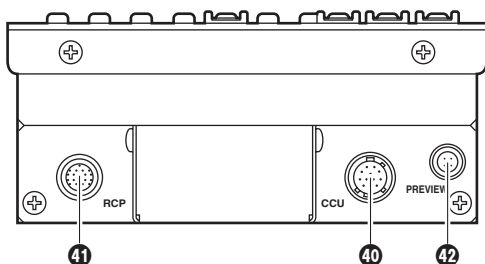
This indicates the master pedestal level in the range of -99 to 99.

## 39 Iris f-number indicator

This indicates the lens f-number.

# Parts and their functions

## ROP connector panel



### ④⑩ CCU connector

The camera control unit (CCU) is connected here.

### ④⑪ RCP connector

The remote control panel (RCP) is connected here.

### ④⑫ Preview control connector [PREVIEW]

This is the output connector which is used for previewing. When the joystick is pushed in, the contact information is output.

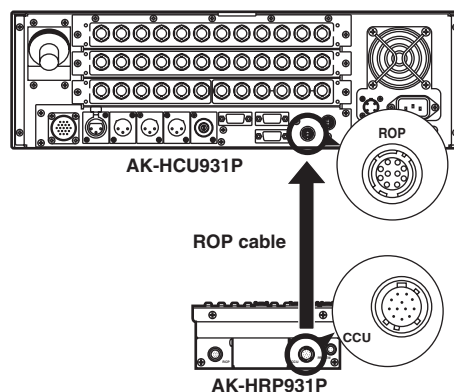
## Connections

### Connections of the system components

1. Connect this panel by connecting its CCU connector to the ROP connector on the rear panel of the CCU using the dedicated ROP cable (optional accessory).
2. After having connected all the components, set the CCU's main power switch to ON, and then set the camera power switch to ON.

#### <Notes>

- When the camera is not connected, the functions which can be controlled using this panel are limited to the CCU control items.
- Before disconnecting the ROP cable, be certain to set CCU's camera power switch to OFF.



## Reference files

This function stores data in the files containing the user's basic settings (user files) and calls the data from them. It is also possible to call data from the file in which the initial camera settings were stored at the factory (factory file).

### Calling reference files

#### ① Factory file

Press scene file switch 4 while holding down CALL. The file call is completed when the scene file switch 4 LED goes off.

#### ② User files

Press scene file switch 1, 2 or 3 while holding down CALL. The file call is completed when the scene file switch LED goes off.

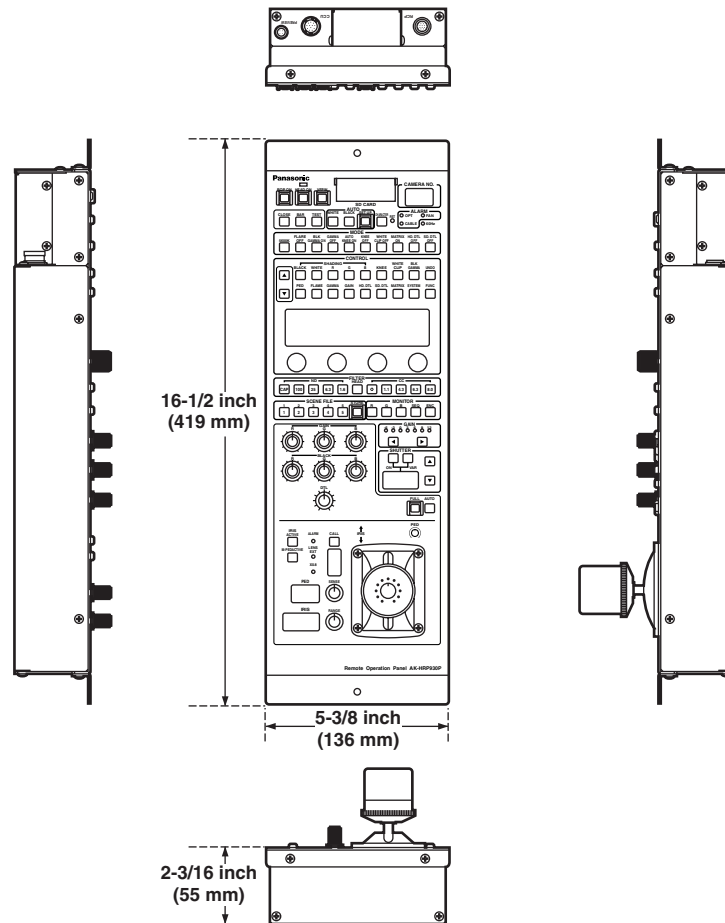
### Storing reference files

#### User files

When the camera is adjusted and set to the statuses which are to be stored and the scene file storage switch is pressed, the LED of the switch flashes red. When scene file switch 1, 2 or 3 is now pressed while holding down CALL, the lamp of the scene file storage switch lights up. Storage is completed when the lamp goes off.



# External dimension drawings



## Specifications

<b>Power supply:</b>	DC 12 V (DC 10 V to 17 V) (Supplied from CCU)
<b>Power consumption:</b>	6 W

 indicates safety information.

<b>CCU control:</b>	Control signals (camera, CCU control) Power supply (DC 12 V) Tally control signals
<b>RCP control:</b>	Control signals (fader control) Power supply (DC 12 V)
<b>PREVIEW control:</b>	Control signals
<b>Maximum cable extension distance:</b>	50 meters
<b>Operating temperature range:</b>	32 °F to 104 °F (0 °C to + 40 °C)
<b>Storage temperature range:</b>	-4 °F to 140 °F (-20 °C to +60 °C)
<b>Operating ambient humidity:</b>	Less than 80%
<b>Dimensions (W × H × D):</b>	5-3/8 × 16-1/2 × 2-3/16 inch (136 × 419 × 55 mm) (excluding protrusions)
<b>Weight:</b>	Approx. 5 lbs (2.3 kg)

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