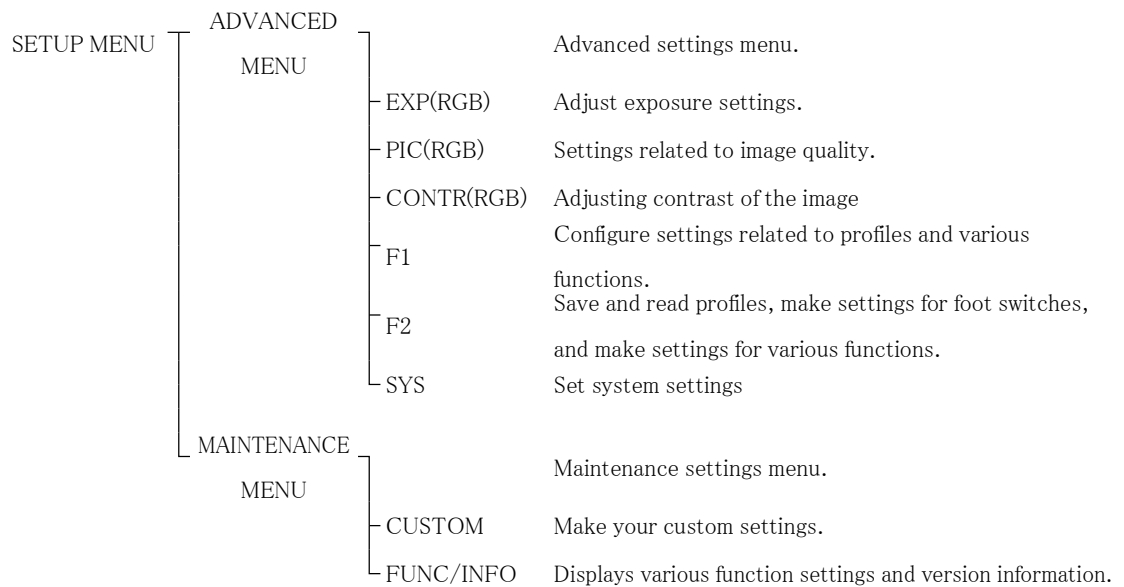


Setup through the SETUP Menu

Set up each item in the SETUP menu in advance to use this unit.

1. SETUP menus

The setup menus consist of two menus “ADVANCED MENU”, and “MAINTENANCE MENU”.



The following items can be set in the ADVANCED MENU.

Setup items	Description
● EXP(RGB)	
AE(RGB)	Sets up AE (Automatic Exposure).
SHUTTER	Sets the electronic shutter speed.
GAIN	Sets the gain.
LONG EXPOSURE	Sets the long exposure
AREA SELECTION	Sets the brightness detection area of “AE”, “GAIN”, and “SHUTTER”.
PEAK/AVE LEVEL	Sets the weighting for peak and average for the brightness detection processing.
● PIC(RGB)	

Setup items	Description
WHITE BAL MODE	Sets the white balance.
DETAIL BAND	Sets the details.
DNR LEVEL	Sets the level of the digital noise reduction.
PEDESTAL LEVEL	Adjusts the pedestal level.
COLOR LEVEL	Sets the whole color level.
COLOR PHASE	Sets the color phase
● CONTR(GB)	
BLACK STRETCH	Sets the black stretch level
CONTRAST LEVEL	Sets the contrast level
HIGH LIGHT STRETCH	Sets the highlight stretch level
IE FUNCTION SELECT	Assigns a function to [IE] (IMAGE ENHANCEMENT) button.
IE FUNCTION LEVEL	Sets the correction level selected with IE.
● F1	
USER PROFILE ID	Sets the camera's ID title.
USER PROFILE LABEL	Sets the label tiles of 1 to 4 profiles to be displayed.
FLIP AND MIRROR	Sets vertical and horizontal image flip.
● F2	
COLOR BAR	Sets the color bar display.
FOOTSW CONTROL CH1	Assigns a function to the foot switch 1.
FOOTSW CONTROL CH2	Assigns a function to the foot switch 2.
USER PROFILE RESET	Initialize the profile contents.
DIGITAL ZOOM	Sets the electronic zoom enable / disable.
● SYS	
OSD POSITION	Sets the OSD position of the video output.
HDMI COLOR DEPTH	Sets the color depth of HDMI.
USB FORMAT	Format the USB Memory.
PRE RECORDING DURATION	Set pre-recording ON/OFF and recording time.
DATE/TIME DISPLAY	Set the date and time display method and manually set it.
FORMAT	Select the date and time display format.
SUMMER TIME	Set the daylight saving time.

2. How to display the menu

The description below explains how to display each SETUP menu on the connected monitor.

CAUTION

The SETUP MENU cannot be displayed while an overlay image is being displayed on the monitor. For details about the overlay image, please refer to the instruction manual (NW_Operation and Settings).

2.1 ADVANCED MENU

Press the [MENU] button for more than 2 seconds, the top page of the ADVANCED MENU will be displayed.

To hide the ADVANCED MENU, Press the [MENU] button for more than 2 seconds while it is displayed.

The ADVANCED MENU has 6 pages. To switch the page, press the [PAGE] button, or move the cursor to the tab on the bottom of the page and press the [◀] or [▶] button.

To switch between 4 profiles, press the [PROFILE] button.

Note:

- To switch between the four profiles, press the [PROFILE] button.
-

3. Basic operation

3.1 How to operate ADVANCED MENU

EXP(RGB) MENU

```
PF1 LABEL  STANDARAD ----- ID: -----
AE (RGB)   *AUTO          LEVEL  32 [ 0 * 63 ]
SHUTTER    AUTO
GAIN       *AUTO          LEVEL  12dB [ 3 * 39 ]
LONG EXPOSURE OFF
AREA SELECTION ALL
PEAK/AVE LEVEL 8 [ 0*8 ]

[ EXP(RGB,--) PIC (RGB,--,----) CONTR(RGB,--) F1 F2 SYS]
```

PIC(RGB) MENU

```
PF1 LABEL  STANDARAD ----- ID: -----
WHITE BAL MODE *AWC          R-GAIN 128 [ 0*255 ]
DETAIL BAND    *SOFT          G-GAIN 128 [ 0*255 ]
DNR LEVEL      8 [ 0*16 ]     LEVEL  16 [ 0*31 ]
PEDESTAL LEVEL 77 [ 68* 95 ]
COLOR LEVEL    38 [ 0*255 ]
COLOR PHASE    -----|----- 0

[ EXP(RGB,--) PIC (RGB,--,----) CONTR(RGB,--) F1 F2 SYS]
```

CONTR(RGB) MENU

```
PF1 LABEL  STANDARAD ----- ID: -----
BLACK STRETCH          -----|-----  0
CONTRAST LEVEL         128[0*255]
HIGH LIGHT STRETCH    -----|-----  0

IE FUNCTION SELECT    *WDR(ON)
LEVEL                 128[0*248]

[ EXP(RGB,--) PIC (RGB,--,----) CONTR(RGB,--) F1 F2 SYS]
```

F1 MENU

```
PF1 LABEL  STANDARAD ----- ID: -----
USER PROFILE
USER PROFILE ID          *OFF
USER PROFILE LABEL      *OFF

FLIP AND MIRROR          OFF

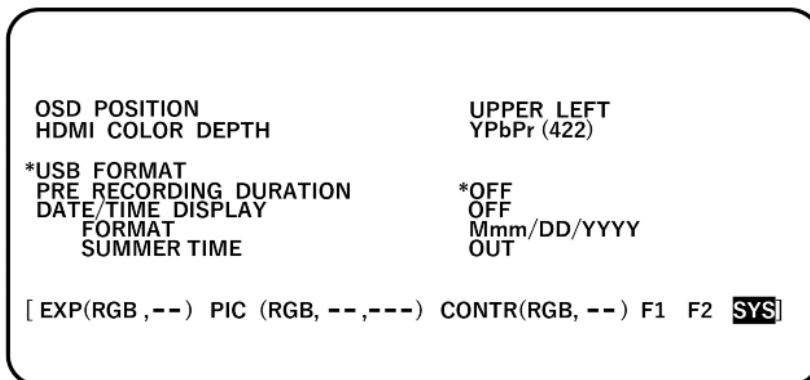
[ EXP(RGB,--) PIC (RGB,--,----) CONTR(RGB,--) F1 F2 SYS]
```

F2 MENU

```
COLOR BAR                *ON
FOOTSW CONTROL CH1      PROFILE1←→2
FOOTSW CONTROL CH2      FREEZE
*USER PROFILE RESET
DIGITAL ZOOM            ON

[ EXP(RGB,--) PIC (RGB,--,----) CONTR(RGB,--) F1 F2 SYS]
```

SYS MENU



STEP1

Select the page.

To switch the page, press the [PAGE] button, or move the cursor to the tab on the bottom of the page and press the [◀] or [▶] button.

STEP2

Set up each item.

- Select the item to be set
Move the cursor by pressing the [△] or [▽] button.
- Change the set item
press the [◀] or [▶] button.
- Display advanced setup page
Press the [SEL] button for the item “*” is indicated.
- Return to the upper level setup page
Press the [MENU] button.

Note:

- The cursor is a blinking part.

In the screen descriptions in this manual, it is represented as 'invert colors'.

STEP3

Press the [MENU] button for 2 second or more after saving the setup content to close the setuppage and return to the camera image.

The setup content will be maintained even after the power of the CCU is turned off.

4. Set up profile

If details, gamma, hue, etc. are registered as a profile in accordance with an installation site, the user can call the 4 registered contents only by pressing the [PROFILE] button on the front panel of the CCU.

We have prepared the following profiles as recommended values. Please select according to your needs. (You can overwrite these profiles and customize settings individually.)

4.1 Initial setting value of PROFILE

Setup items	FP1	PF2	PF3	PF4
●EXP(RGB)				
AE(RGB)	AUTO	←	←	←
<AUTO> LEVEL	32	←	←	←
SHUTTER	AUTO	←	←	←
<MANUAL (FIX)>	OFF	←	←	←
GAIN	AUTO	←	←	←
<AUTO> LEVEL	12	←	←	39
<MANUAL (FIX)>LEVEL	12	←	←	39
LONG EXPOSURE	OFF	←	←	←
<AUTO>	OFF	←	←	←
AREA SELECTION	ALL	←	←	←
PEAK/AVE LEVEL	8	←	←	←
●PIC(RGB)				
WHITE BAL MODE	AWC	←	←	←
R-GAIN	128	←	124	128
B-GAIN	128	←	130	128
DETAIL BAND	SOFT	SHARP	←	MEDIUM SHARP
DETAIL LEVEL	16	←	←	←
DNR LEVEL	8	←	←	←

PEDESTAL LEVEL	77	←	←	←
COLOR LEVEL	38	←	←	←
COLOR PHASE	0	←	←	←
●CONTR(RGB)				
BLACK STRETCH	0	←	←	←
CONTRAST LEVEL	128	←	←	←
HIGHLIGHT STRETCH	0	←	←	←
IE FUNCTION SELECT	WDR(OFF)	←	←	←
IE FUNCTION LEVEL				
WDR	128	←	←	←
SMOKE CORRECTION	4	←	←	←
COLOR ENHANCEMENT	128	←	←	←
●F1				
USER PROFILE				
USER PROFILE ID	OFF	←	←	←
ID	(not entered)	←	←	←
POSI	Top left	←	←	←
PROFILE LABEL	OFF	←	←	←
ID	STANDARD	ENDOSCOPE (WARM)	ENDOSCOPE (COOL)	MICROSCOPE
POSI	Top left	←	←	←
FLIP AND MIRROR	OFF	←	←	←
●F2	※Common to all profiles			
COLOR BAR	ON	-	-	-
FOOTSW CONTROL CH1	PROFILE1←→2	-	-	-
FOOTSW CONTROL CH2	FREEZE	-	-	-

USER PROFILE RESET	-	-	-	-
DIGITAL ZOOM	ON	-	-	-
●SYS	※Common to all profiles			
OSD POSITION	UPPER LEFT	-	-	-
HDMI COLOR DEPTH	YPbPr(422)	-	-	-
USB FORMAT	-	-	-	-
PRE RECORDING DURATION	OFF	-	-	-
PRE RECORDING DURATION	5	-	-	-
DATE/TIME DISPLAY	OFF	-	-	-
YEAR	-	-	-	-
MONTH	-	-	-	-
DAY	-	-	-	-
HOUR	-	-	-	-
MINUTE	-	-	-	-
SECOND	-	-	-	-
DATE/TIME FORMAT	Mmm/DD/YYYY	-	-	-
DATE/TIME SUMMER TIME START	OUT	-	-	-
MONTH	Jan	-	-	-
WEEK No.	1st	-	-	-
WEEKDAY	Sun	-	-	-
TIME	1	-	-	-
END				
MONTH	Jan	-	-	-
WEEK No.	1st	-	-	-
WEEKDAY	Sun	-	-	-
TIME	1	-	-	-

EXP(RGB) MENU

```

PF1 LABEL  STANDARAD ----- ID: -----
AE (RGB)   *AUTO          LEVEL   32[ 0 * 63 ]
SHUTTER    AUTO
GAIN       *AUTO          LEVEL   12dB [ 3 * 39 ]
LONG EXPOSURE OFF
AREA SELECTION ALL
PEAK/AVE LEVEL 8 [ 0*8 ]

[ EXP(RGB,--) PIC (RGB,--,---) CONTR(RGB,--) F1 F2 SYS]
    
```

PIC(RGB) MENU

```

PF1 LABEL  STANDARAD ----- ID: -----
WHITE BAL MODE *AWC          R-GAIN 128[ 0*255 ]
G-GAIN 128[ 0*255 ]
DETAIL BAND   *SOFT          LEVEL  16[ 0* 31 ]
DNR LEVEL    8[ 0* 16 ]
PEDESTAL LEVEL 77[ 68* 95 ]
COLOR LEVEL  38[ 0*255 ]
COLOR PHASE   -----|----- 0

[ EXP(RGB,--) PIC (RGB,--,---) CONTR(RGB,--) F1 F2 SYS]
    
```

CONTR(RGB) MENU

```

PF1 LABEL  STANDARAD ----- ID: -----
BLACK STRETCH -----|----- 0
CONTRAST LEVEL 128[0*255]
HIGH LIGHT STRETCH -----|----- 0

IE FUNCTION SELECT *WDR(ON)
LEVEL             128[0*248]

[ EXP(RGB,--) PIC (RGB,--,---) CONTR(RGB,--) F1 F2 SYS]
    
```

F1 MENU

```
PF1 LABEL  STANDARAD-----ID: -----  
USER PROFILE  
USER PROFILE ID      *OFF  
USER PROFILE LABEL   *OFF  
  
FLIP AND MIRROR      OFF  
  
[ EXP(RGB,--) PIC (RGB,--,---) CONTR(RGB,--) F1 F2 SYS]
```

4.2 How to set PROFILE

There are four profiles with recommended settings for each scene registered as default values. To switch profiles, press the [PROFILE] button on the front of the unit when the SETUP menu is not displayed to switch in the following order: 1 → 2 → 3 → 4 → 1 → 2 → If you want to change the default settings, select a profile and then change the items you want to set. The number of the current profile and the text set in "USER PROFILE LABEL" are displayed in the upper left of the screen.

5. Restore default

There are four ways to restore.

1. Selected Item RESET: To restore each setting in the SETUP MENU to the default, move the cursor to the item to change and hold down the [◀] and the [▶] buttons simultaneously for 1 second or more.
2. Page RESET: To restore the initial setting of all the items in each page of “ADVANCED MENU”, move the cursor to the tab on the bottom of the page, and hold down the [◀] and [▶] buttons simultaneously for 1 second or more.
3. One Profile RESET: To restore the initial setting of only the selected profile, press the [PROFILE] button for more than 1 second.
4. USER PROFILE RESET: To restore the initial setting of all the profiles, use “USER PROFILE RESET” Use ToTo restore the initial setting
5. ALL RESET: Use [*ALL RESET] in the [FUNC/INFO] tab in the 「MAINTENACE MENU」 as described following section.

CAUTION

If you request to restore the default settings, the previous settings will be erased and cannot be restored.

USER PROFILE RESET flashes while the initial settings ([USER PROFILE RESET] on the [F2] tab at the bottom of the menu) are being performed. The initial settings take about one minute, so please wait without turning off the power during this time. When the initial settings are complete, the power will be turned back on and the device will return to its factory settings.

The items that can be initialized in steps 1 to 5 are listed in the table below. Items that can be initialized are marked with a circle.

Setup items	1. Selected Item RESET	2. Page RESET	3. One Profile RESET	4. USER PROFILE RESET	5. ALL RESET
●EXP(RGB)					
AE(RGB)	×	○	○	○	○
<AUTO> LEVEL	○	○	○	○	○
SHUTTER	×	○	○	○	○

<MANUAL (FIX)>	×	○	○	○	○
GAIN	×	○	○	○	○
<AUTO> LEVEL	○	○	○	○	○
<MANUAL (FIX)>LEVEL	○	○	○	○	○
LONG EXPOSURE	×	○	○	○	○
<AUTO>	×	○	○	○	○
AREA SELECTION	×	○	○	○	○
PEAK/AVE LEVEL	○	○	○	○	○
●PIC(RGB)					
WHITE BAL MODE	×	○	○	○	○
R-GAIN	○	○	○	○	○
B-GAIN	○	○	○	○	○
DETAIL BAND	○	○	○	○	○
DETAIL LEVEL	○	○	○	○	○
DNR LEVEL	○	○	○	○	○
PEDESTAL LEVEL	○	○	○	○	○
COLOR LEVEL	○	○	○	○	○
COLOR PHASE	○	○	○	○	○
●CONTR(RGB)					
BLACK STRETCH	○	○	○	○	○
CONTRAST LEVEL	○	○	○	○	○
HIGHLIGHT STRETCH	○	○	○	○	○
IE FUNCTION SELECT	○	○	○	○	○
IE FUNCTION LEVEL					

WDR	○	○	○	○	○
SMOKE CORRECTION	○	○	○	○	○
COLOR ENHANCEMENT	○	○	○	○	○
●F1					
USER PROFILE					
USER PROFILE ID	×	○	×	○	○
ID	×	○	×	○	○
POSI	×	○	×	○	○
PROFILE LABEL	×	○	○	○	○
ID	×	○	○	○	○
POSI	×	○	○	○	○
FLIP AND MIRROR	×	○	○	○	○
●F2					
COLOR BAR	-	-	-	-	-
FOOTSW CONTROL CH1	×	○	×	×	○
FOOTSW CONTROL CH2	×	○	×	×	○
USER PROFILE RESET	×	×	×	×	×
DIGITAL ZOOM	×	○	×	×	○
●SYS					
OSD POSITION	×	○	×	×	○
HDMI COLOR DEPTH	×	○	×	×	○
USB FORMAT	-	-	-	-	-
PRE RECORDING DURATION	×	○	×	×	○
PRE RECORDING DURATION	○	○	×	×	○

DATE/TIME DISPLAY	×	○	×	×	○
YEAR	×	○	×	×	○
MONTH	×	○	×	×	○
DAY	×	○	×	×	○
HOUR	×	○	×	×	○
MINUTE	×	○	×	×	○
SECOND	×	○	×	×	○
DATE/TIME FORMAT	×	○	×	×	○
DATE/TIME SUMMER TIME	×	○	×	×	○
START					
MONTH	×	○	×	×	○
WEEK No.	×	○	×	×	○
WEEKDAY	×	○	×	×	○
TIME	×	○	×	×	○
END					
MONTH	×	○	×	×	○
WEEK No.	×	○	×	×	○
WEEKDAY	×	○	×	×	○
TIME	×	○	×	×	○

6. MAINTENANCE MENU

For details and how to operate MAINTENANCE MENU, contact your dealer.

When displaying the MAINTENANCE MENU, the video output format is forcibly set to factory default.



The following items can be set in the MAINTENANCE MENU.

Setup items	Description
CUSTOM	
KEY BIND(FREEZE) [Default: SNAPSHOT]	Sets the function assignment for the [FREEZE] button. [OFF, FREEZE, SNAPSHOT, FREEZE & SNAPSHOT]
FUNC/INFO	
ALL RESET	Restores all the default settings.
CPU VER.	Displays the CPU version.
HEAD VER.	Displays the FPGA (HEAD) version and camera type.

CAUTION

- ALL RESET flashes while ALL RESET is in progress. The initial settings take about one minute, so please wait without turning off the power during this time. When the initial settings are complete, the power will be turned back on and the unit will return to the factory settings.

メモ

- If you press the  button when not in MENU display, the snapshot function can be executed.  function can be configured in “KEY BIND” setting.

6.1 How to display the MAINTENANCE MENU

The top page of the MAINTENANCE MENU will be displayed when the power is turned on while the [MENU] button and [SEL] button are pressed simultaneously.

The MAINTENANCE MENU has 2 pages. To switch the page, press the [PAGE] button, or move the cursor to the tab on the bottom of the menu and click the [◀] or [▶] button.

Note:

- To display the MAINTENANCE MENU, press and hold the [MENU] and [SEL] buttons for about 20 seconds.

7. EXP (RGB)

Adjust exposure settings.

7.1 AE (RGB)

Sets the AE (Automatic Exposure).

The brightness of the image will be automatically adjusted if “AUTO” is selected for AE (Automatic Exposure).

The AE function adjusts the brightness of the image by controlling “GAIN” and “SHUTTER”.

7.2 AE LEVEL

The brightness of the image can be adjusted.

It can also be configured using the [LEVEL] volume.

Adjusting range	Description
0 ~ 63	When decreased, the image becomes darker. When increased, the image becomes brighter.

7.3 SHUTTER

The electronic shutter setting can be adjusted.

Select the electronic shutter mode from the following: “AUTO”, “MANUAL(FIX)”

If “MANUAL(FIX)” is selected, please set the electronic shutter integration time according to the environmental conditions.

Selected items	Description
AUTO	The electronic shutter will be automatically adjusted. It can only be selected when AE is set to “AUTO”.
MANUAL(FIX)	The electronic shutter integration time can be specified.

If “MANUAL(FIX)” is selected, the electronic shutter integration time shall be specified.

System frequency	Adjusting range
29.97fps(4K camera head is connected)	OFF、1/100、1/250、1/500、1/1000、1/2000、1/4000、1/10000

59.94Hz(2K camera head is connected)	OFF、1/100、1/250、1/500、1/1000、1/2000、1/4000、1/10000
25Hz(4K camera head is connected)	OFF、1/120、1/250、1/500、1/1000、1/2000、1/4000、1/10000
50Hz(2K camera head is connected)	OFF、1/120、1/250、1/500、1/1000、1/2000、1/4000、1/10000

7.4 GAIN

The gain settings can be adjusted.

The gain adjustment method can be selected from "OFF", "AUTO", "MANUAL(FIX)". When "MANUAL(FIX)" is selected, please adjust the gain according to the operating environment.

Selected items	説明
OFF	No gain adjustment
AUTO	Automatic gain adjustment The allowable maximum value for the automatic adjustment will be applied.
MANUAL(FIX)	Manual gain adjustment The gain will be fixed at the set value.

If "MANUAL(FIX)" is selected, the gain setting can be specified.

Adjusting range	Description
3~39dB(12dB)	Adjust gain selection in MANUAL mode in 1dB increments. The smaller the value, the lower the gain, and the darker the image becomes. The larger the value, the higher the gain, and the brighter the image becomes.

7.5 LONG EXPOSURE

Settings related to long exposure can be adjusted.

The larger the value of the long exposure time, the brighter the image becomes, but please be aware that there may be more blur in moving subjects.

Selected items	Description
OFF	Sets the long exposure off.

AUTO	Automatically controls the long exposure. The maximum exposure time for automatic control can be selected from OFF, x2, x4, x6.
------	--

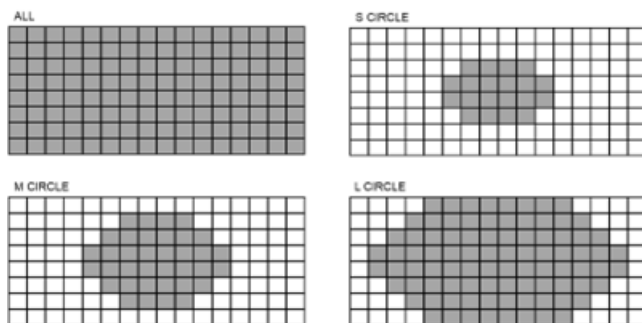
7.6 AREA SELECTION

Set the brightness detection areas for 'AE,' 'GAIN,' and 'SHUTTER'.

If bright light such as a spotlight is present in the background behind a subject, the subject may appear dark. To eliminate this phenomenon, masking bright areas allows users to perform backlight compensation to hide bright areas.

Selected items	Description
AUTO	Dark areas are automatically masked, and only bright areas are detected.
ALL	The detection target is the whole area on the screen.
S CIRCLE	The detection target is the small circle area in the center of the screen.
M CIRCLE	The detection target is the medium circle area in the center of the screen.
L CIRCLE	The detection target is the large circle area in the center of the screen.
MANU	This will be a future expansion.

※The detection area in the image below is not displayed.



7.7 PEAK/AVE LEVEL

Adjusts the weighting for peak and average brightness detection processing.

Adjusting range	Description
-----------------	-------------

0~8	<p>Adjust the brightness detection weighting level.</p> <p>When the value is moved in the “0” direction, the peak value (maximum value) will be detected. When the value is moved in the “8” direction, the average value will be detected.</p>
-----	---

8 PIC (RGB)

Settings related to image quality.

8.1 WHITE BAL MODE

The white balance settings can be adjusted.

Select the white balance adjustment method from "AWC", "ATW" or "MANUAL".

Selected items	Description
AWC	White balance control mode is set. It is suitable for a location where a light source is stable. When "AWC" is selected, the operation to adjust the white balance is required.
ATW	Set the white balance to automatic white balance tracking mode. The camera determines the white balance and automatically adjusts it continuously. If in the following conditions, colors may not be reproduced faithfully, so in that case, use "AWC" mode. – Most of the subject is not white. – The subject is too dark or too bright.
MANUAL	White balance can be adjusted manually adjusted. Adjust "R-GAIN" or "B-GAIN" to set the white balance.

- White balance adjustment procedure for AWC.

Adjust the white balance using the following steps.

(1) Aim the camera at a white subject. Take an image of a sufficiently bright white subject under the light source to be used.

(2) Press the [WB] button and the AWC will start.

(3) AWC will be started up, and the AWC status will be displayed. When the adjustment is complete, "AWC OK" will be displayed. When the adjustment fail, "AWC NG" will be displayed.

The AWC status can be understood by referring to the AWC STATUS (AWC Result Data (Read Only)) assigned to the EEPROM (RAM). The STATUS will show "Adjustment in progress" while adjustment is in progress. When the STATUS shows "Adjustment complete" or "Adjustment failed", the adjustment is complete.

(4) After the adjustment is finished, it will be saved.

For details, please refer to the section "8. White Balance" in the EEPROM setting manual.

Note:

- If AWC is performed while the setting of "R-GAIN" or "B-GAIN" of "MANUAL" is set to other than the default (128), the white balance may not be set properly.
 - After adjusting the white balance in AWC, adjust "R" and "B" when the white balance is not perfectly matched or when you intentionally want to introduce a reddish or bluish tone.
 - Adjustment is available for each profile.
 - If the lamp is kept on after "AWC NG" is displayed after the profile is changed, retry step 1 and 2.
-

- White balance adjustment procedure for MANUAL.

When "MANUAL" is selected, move the cursor to "R-GAIN" or "B-GAIN" and adjust the white balance.

R-GAIN (WB RED GAIN)

Adjusting range	Description
0~255	Adjust the gain level of the R signal. The smaller the value, the lower the gain, and the less red color tint. The larger the value, the higher the gain, and the more intense the red color tint.

B-GAIN (WB BLUE GAIN)

Adjusting range	Description
0~255	Adjust the gain level of the B signal. The smaller the value, the lower the gain, and the less blue color tint. The larger the value, the higher the gain, and the more intense the blue color tint.

Note:

- Increasing the gain values for both the R signal and B signal will reduce the green color tint.
 - Decreasing the gain values for both the R signal and B signal will increase the green color tint.
 - When resetting the WHITE BAL MODE to "AWC," it is recommended to set "R-GAIN" and "B-GAIN" to 128.
-

8.2 DETAIL BAND

The band and level of the edge correction are specified.

Set the contour correction bandwidth and correction amount using the following procedure.

- (1) Move the cursor to “DETAIL BAND”, and select a band pattern from the following: “OFF”, “SOFT”, “MEDIUM SHARP”, “SHARP”, or “SHARPEST”.
- (2) Move the cursor to “DETAIL LEVEL” to adjust the intensity level.

DETAIL BAND

Selected items	Description
OFF	Turn off the contour correction.
SOFT	The contour becomes thinner, and the contour correction bandwidth is high.
MEDIUM SHARP	Compared to SOFT, the contours become slightly thicker.
SHARP	Compared to SHARPEST, the contours become slightly thinner.
SHARPEST	Contours become thicker, and the contour correction bandwidth is low.

DETAIL LEVEL

Adjusting range	Description
0~31	Adjust the intensity level of contour correction. The smaller the value, the less detail, resulting in a softer image. The larger the value, the more detail, resulting in a sharper image.

Note:

- Jaggies may present in the contour of a photographic subject, but it is not an abnormal phenomenon. If this phenomenon is not favorable, decrease “DETAIL BAND” or “DETAIL LEVEL” and adjust the image quality.
-

8.3 DNR LEVEL

The digital noise reduction level can be adjusted.

Adjusting range	Description
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0~16	Utilizing data from pixels in both vertical and horizontal directions around the focal pixel, as well as data from the pixel at the corresponding position in the previous frame, performs 3D digital noise reduction. Adjust the strength of this effect. The smaller the value, the less noise reduction effect. The larger the value, the more noise reduction, but it may increase the occurrence of ghosting.
------	--

8.4 PEDESTAL LEVEL

The Pedestal level, which serves as the reference for brightness, can be adjusted.

Adjust the pedestal level (black signal level) viewing a vector scope or color video monitor.

Adjusting range	Description
68~95	Adjust the pedestal level (black signal level) When the value is decremented, the image becomes darker. When the value is incremented, the image becomes brighter.

8.5 COLOR LEVEL

The color level settings can be adjusted.

Adjust the color level viewing a vector scope or color video monitor.

Adjusting range	Description
0~255	Adjust the color level. When the value is decremented, the color becomes lighter. When the value is incremented, the color becomes deeper.

8.6 COLOR PHASE

COLOR PHASE can be adjusted.

Adjust the hue viewing a vector scope or color video monitor.

Adjusting range	Description
-128~0~127	Adjust the hue of the color on the target axis. The smaller the value, the hue changes counterclockwise. The larger the value, the hue changes clockwise.

9. CONTR(RGB)

Adjusting contrast of the image

9.1 BLACK STRETCH

BLACK STRETCH can be adjusted.

Adjusting the dark part of the image.

Adjusting range	Description
-128~0~127	Adjust the black stretch level. The smaller the value, makes darker in the dark area of the image. The larger the value, makes brighter in the dark area of the image.

9.2 CONTRAST LEVEL

Adjusting the contrast level.

Adjusting range	Description
0~255	Adjust the contrast level. When the value is decremented, makes the higher contrast image. When the value is incremented, makes less contrast image.

9.3 HIGHLIGHT STRETCH

Adjusting the highlight stretch level.

Adjusting the brightness in the highlight area of the image.

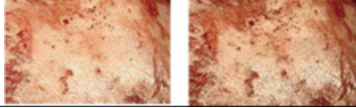
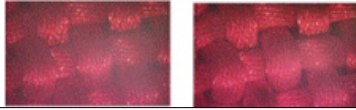
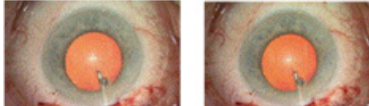
Adjusting range	Description
-128~0~127	Adjust the high stretch level. The smaller the value, makes high contrast in the highlight area of the image. The larger the value, makes less contrast in the highlight area of the image.

9.5 IE FUNCTION SELECT

Sets the IE (IMAGE ENHANCEMENT) function.

Press the [◀]/[▶] button to select the function you want to use, and press the [SEL] button to turn the function ON/OFF.

IE FUNCTION割り当て機能 (Image Enhancement On/Off)

Selected items	Description
WDR	<p>The dynamic range expansion function corrects the dark area brighter while controlling the over exposure. (Left side: function OFF, Right side: function ON)</p> 
SMOKE CORRECTION	<p>The smoke correction function clears white blur. (Left side: function OFF, Right side: function ON)</p> 
COLOR ENHANCEMENT	<p>The color enhancement function enhances the selected color. (Left side: function OFF, Right side: function ON)</p> 

3.9.6 IE FUNCTION LEVEL

Adjust the correction level of the function selected with IE FUNCTION SELECT.

When “COLOR ENHANCEMENT” is selected, the color of RED, RED&YELLOW, or YELLOW can be selected in addition to the correction level.

Adjust the correction level of the function selected with [IE FUNCTION SELECT] by operating the [◀] or [▶] button viewing a vector scope or color video monitor.

LEVEL (Wide D-range (WDR)Effect Level)

Adjusting range	Description
0~248(Increase or decrease by 8)	<p>Adjust the correction level of the WDR function. The smaller the value, the lower the correction amount. The larger the value, the higher the correction amount.</p>

LEVEL (SMOKE CORRECTION Level)

Adjusting range	Description
0~8	Adjust the correction level of the SMOKE CORRECTION function. The smaller the value, the lower the correction amount. The larger the value, the higher the correction amount.

LEVEL (COLOR ENHANCEMENT Level)

Adjusting range	Description
0~255	Adjust the correction level of the COLOR ENHANCEMENT function. The smaller the value, the lower the correction amount. The larger the value, the higher the correction amount.

10. F1 (PROFILE)

Configure settings related to profiles and various functions.

10.1 USER PROFILE ID

10.2 USER PROFILE LABEL

Set the user profile ID and label. The ID and the label that indicate the camera location or image content can be created and displayed on the screen with use of alphanumeric characters and symbols.

This sets the ID and LABEL for camera profiles 1 through 4. Up to 16 characters can be used for the ID and label.

Follow the procedure below to set the ID and label.

- (1) Set “USER PROFILE ID” or “USER PROFILE LABEL” to “ON” and press the [SEL] button.
→ The title creation screen will be displayed.
- (2) Move the cursor to the target character using the [△], [▽],[◀] or [▶] button, and press the [SEL] button.
→ The entered characters will be displayed in the editing area.
- (3) After entering the title, move the cursor to “POS1” and press the [SEL] button.
→ The display positioning screen will be displayed and the entered camera title blinks.
- (4) Use the [△], [▽], [◀] and [▶] buttons to set the title position and press the [MENU] button.
→ The display position is determined and the title creation screen will be restored.
- (5) When you have finished creating the title, press the [MENU] button, or select “RET” and press the [SEL] button to return to the F1 screen. You can also select “END” and press the [SEL] button to exit the SETUP menu.

<Character entry >

- To revise a character, move the cursor to “←” or “→” and press the [SEL] button. Move the cursor to the character to be revised in the entry range and re-enter a correct character.
 - To enter a blank, move the cursor to “SPACE” and press the [SEL] button.
 - To delete all the entered characters, move the cursor to “RESET” and press the [SEL] button.
-

Note:

- The title display position can be changed with the "POSI" setting
 - The "POSI" setting for "USER PROFILE ID" is only effective when "USER PROFILE LABEL" is set to "OFF." When "USER PROFILE LABEL" is set to "ON," the "POSI" setting for "USER PROFILE LABEL" takes priority.
-

Profile selection (switching) settings.

Press the [PROFILE] button to switch profiles.

10.3 FLIP & MIRROR

The vertical and horizontal flip function can be adjusted.

The following is available as the vertical and horizontal flip function.

Selected items	Description
OFF	Normal display
FLIP	Vertically flipped
MIRROR	Horizontally flipped
FLIP+MIRROR	Vertically and horizontally flipped.

Note:

- The freeze function can be performed at the same time.
-

11 F2

Configure the settings for various functions common to all profiles.

11.1 COLOR BAR

This function displays the color bar.

Press the [SEL] button to display the color bar, or press the [MENU] button to return to the top screen.

Note:

- Color bars are displayed even when a camera head is not connected to the CCU.

11.2 FOOTSW CONTROL CH1

Sets the function assignment for footswitch 1 (CH1).

The following functions can be assigned to CH1:

Selected items	Description
NONE	Disable the switch.
FREEZE	Sets ON/OFF of screen freeze.
FLIP+MIRROR	Sets ON/OFF of vertical and horizontal image flip.
FLIP	Sets ON/OFF of vertical image flip.
MIRROR	Sets ON/OFF of horizontal image flip.
PROFILE 1←→2	Switches between profile 1 and 2.
PROFILE 3←→4	Switches between profile 3 and 4.
PROFILE ALL	Switches between all the profiles, from 1 to 4 in order.
ZOOM IN	Zooms in the image when “ON(ENABLE)” is selected for “DIGITAL ZOOM”.
ZOOM OUT	Zooms out the image when “ON(ENABLE)” is selected for “DIGITAL ZOOM”.
ZOOM 1.0x←→2.0x	Switches between 1.0x and 2.0x when “ON(ENABLE)” is selected for “DIGITAL ZOOM”.
REC START/STOP	Start/stop recording.

11.3 FOOTSW CONTROL CH2

Sets the function assignment for footswitch 2 (CH2).

The following functions can be assigned to CH2:

Selected items	Description
NONE	Disable the switch.
FREEZE	Sets ON/OFF of screen freeze.
FLIP+MIRROR	Sets ON/OFF of vertical and horizontal image flip.
FLIP	Sets ON/OFF of vertical image flip.
MIRROR	Sets ON/OFF of horizontal image flip.
PROFILE 1 \longleftrightarrow 2	Switches between profile 1 and 2.
PROFILE 3 \longleftrightarrow 4	Switches between profile 3 and 4.
PROFILE ALL	Switches between all the profiles, from 1 to 4 in order.
ZOOM IN	Zooms in the image when "ON(ENABLE)" is selected for "DIGITAL ZOOM".
ZOOM OUT	Zooms out the image when "ON(ENABLE)" is selected for "DIGITAL ZOOM".
ZOOM 1.0x \longleftrightarrow 2.0x	Switches between 1.0x and 2.0x when "ON(ENABLE)" is selected for "DIGITAL ZOOM".
REC START/STOP	Start/stop recording.

CAUTION

- The foot switch operation will be disabled while the SETUP menu is displayed.
- If you connect a monitor after starting recording, the image may not be displayed. If you wish to record, please start recording with the monitor connected beforehand.
- Please do not switch to a monitor while recording as this may result in the image not appearing.
- You cannot record for 5 seconds after connecting the USB memory. If you want to record, please wait 5 seconds or more after connecting the USB memory before starting recording.
- To perform operations such as recording, please perform the initial setup from the browser in advance. Please refer to the instruction manual (NW_Operation and Setup) for details on the initial setup.

11.4 USER PROFILE RESET

Reset profile settings to factory default settings.

Returns the settings of "EXP (RGB)", "PIC (RGB)", "CONTR (RGB)", and "F1" to the default settings.

To execute this operation, follow the steps below.

- (1) Move the cursor to “USER PROFILE RESET” and press the [SEL] button.
- (2) A confirmation message “USER PROFILE RESET? YES/NO” will be displayed. Select “YES” to reset the profile settings to the default settings.

11.5 DIGITAL ZOOM

Set ENABLE/DISABLE for electronic zoom.

Set the zoom function ON(ENABLE)/OFF(DISABLE).

Selected items	Description
OFF	Do not allow electronic zoom function (DISABLE)
ON	Allow electronic zoom function (ENABLE)

12. SYS (SYSTEM)

Set system settings

12.1 OSD POSITION

Set the OSD display position of video output.

Selected items	Description
UPPER LEFT	Displays OSD in the upper left area of the video output angle of view.
UPPER RIGHT	Displays OSD in the upper right area of the video output angle of view.
LOWER LEFT	Displays OSD in the lower left area of the video output angle of view.
LOWER RIGHT	Displays OSD in the lower right area of the video output angle of view.

CAUTION

When a 2K head is connected, it is fixed to UPPER LEFT.

12.2 HDMI COLOR DEPTH

Sets the color depth of the VIDEO OUT signal.

Please note that when you change this setting, the video output from the VIDEO OUT port will be interrupted for a few seconds.

Output Signal	Selected items	Description
2160p/1080p	RGB(LIMITED)	Set the color depth of the output signal to RGB(LIMITED).
	RGB(FULL)	Set the color depth of the output signal to RGB (FULL).
	YPbPr(444)	Set the color depth of the output signal to YPbPr (444).
	YPbPr(422)	Set the color depth of the output signal to YPbPr (422).

12.3 USB FORMAT

Format the USB memory.

When formatting is performed, all data stored on the USB memory will be erased and the file format will be exFAT.

<How to execute>

1. Insert the USB memory into the CCU and make sure that the front panel LED is green.
2. Move the cursor to "FORMAT" and press the "SEL" button to start formatting.
3. "USB FORMAT IN PROGRESS" will flash and the front panel LED will flash green.
4. When complete USB formatting, "USB FORMAT IN PROGRESS" will be disappeared and the front panel LED flash will be stopped.

12.4 PRE RECORDING DURATION

Set the pre-recording time.

Selected items	Description
ON	Enable pre-recording. Past recording data can be saved. You can select the maximum pre-recording time from the following. 5s, 10s, 20s, 30s, 40s, 50s, 60s, 120s, 180s, 240s, 300s, 360s, 420s, 480s
OFF	Disable pre-recording.

Note:

- The selectable value is depending on the bitrate of the video to be recorded. When The higher the bitrate is set, the maximum pre-recording time will be reduced.
- When a 4K head is connected, the bitrate cannot be set below 1536kbps.
- The bitrate setting can be checked and set from the browser screen. Please refer to the instruction manual (NW_Operation/Settings) for details.
- The recommended pre-recording time for each bitrate is listed in the table below.

Bitrate(kbps)	Pre-recording time Recommended setting (seconds)
24576	5
20480	5
16384	5
14336	5
12288	5

10240	10
8192	10
6144	10
4096	20
3072	30
2048	50
1536	60
1024	60
768	120
512	180
384	300
256	420

12.5 DATE/TIME DISPLAY

Set whether or not to display the date and time on the screen.

Selected items	Description
OFF	The date and time are not displayed on the screen.
24h	The date and time are displayed on the screen in 12-hour format with AM/PM.
12h	The date and time are displayed on the screen in 24-hour format.

Set the date and time to be displayed on the screen.

Selected items	Description
YEAR(2013~2035)	Sets the year to be displayed on the screen.
MONTH(Jan~Dec)	Sets the month to be displayed on the screen.
DAY(1~31)	Set the date to be displayed on the screen. The range that can be set varies depending on the month.
HOUR(0~23)	Set the time to be displayed on the screen.
MINUTE(0~59)	Sets the minutes to be displayed on the screen.
SECOND(0~59)	Sets the seconds to be displayed on the screen.

12.6 DATE/TIME FORMAT

Select the date display format.

Selected items	Description
DD/MM/YYYY	Display example:01/04/2022 13:10:00

MM/DD/YYYY	Display example:04/01/2022 13:10:00
DD/Mmm/YYYY	Display example:01/Apr/2022 13:10:00
YYYY/MM/DD	Display example:2022/04/01 13:10:00
Mmm/DD/YYYY	Display example:Apr/01/2022 13:10:00

12.7 DATE/TIME SUMMER TIME

Set whether to use daylight saving time.

Selected items	Description
In	Sets the time to daylight saving time. [*] will be displayed in the time display.
Out	Cancels daylight saving time.
Auto	The system switches to daylight saving time according to the start and end date and time settings (month, week, day of the week, time). During daylight saving time, [*] is displayed on the time display.

Set the start and end of daylight saving time.

Selected items	Description
START-MONTH(Jan~Dec)	Sets the month when daylight saving time begins.
START-WEEK No.(1st~Last)	Set the week on which daylight saving time starts.
START-WEEKDAY(Sun~ Sat)	Set the day of the week when daylight saving time starts.
START-TIME(0~23)	Set the time when daylight saving time starts.
END-MONTH(Jan~Dec)	Sets the month when daylight saving time ends.
END-WEEK No.(1st~Last)	Set the week on which daylight saving time ends.
END-WEEKDAY(Sun~Sat)	Set the day of the week when daylight saving time ends.
END-TIME(0~23)	Set the time to end daylight saving time.

CAUTION

- The start and end of daylight saving time cannot be set to the same date and time.