

**Panasonic**  
BUSINESS

# The AG-DVX200 Book



## Table of contents

<b>1. Image sensor &amp; record formats</b> .....	<b>4</b>
1-1. Record modes .....	6
1-2. Recording in different codecs with dual memory card slots .....	6
1-3. Image size comparison between 4K/UHD and HD formats .....	7
<b>2. Preparation before Shooting</b> .....	<b>8</b>
2-1. Major IN/OUT connectors .....	9
2-2. Record mode settings.....	10
2-3. Audio input settings.....	10
2-4. Record modes and required speed class of SD memory cards .....	11
2-5. Mounting to Tripod.....	11
<b>3. MENU settings</b> .....	<b>12</b>
SCENE FILE.....	14
SYSTEM MODE .....	16
USER SWITCH.....	18
SWITCH SETTING .....	20
AUTO SWITCH SETTING .....	24
RECORDING SETUP .....	25
AUDIO SETUP .....	26
OUTPUT SETUP .....	27
DISPLAY SETTING .....	28
OTHER FUNCTIONS .....	30
NETWORK SETUP .....	31
MAINTENANCE.....	31
<b>4. Understanding advanced features</b> .....	<b>32</b>
4-1. Monitoring 4K & UHD image .....	33
4-2. Understanding Focus assist features .....	34
4-3. Understanding Dual memory card slots .....	35
4-4. Recording 4:2:2 10-bit image with external 4K recorders .....	36
4-5. Synchronizing timecode for multi-cam operation .....	37
4-6. Understanding user customizable image stabilizer.....	38
4-7. Understanding user customizable auto focus.....	39
4-8. Understanding Focus transition feature.....	40
4-9. Understanding Remote operation via AG ROP application for iPad.....	41
<b>5. Understanding scene file operations</b> .....	<b>44</b>
5-1. SCENE FILE presets .....	45
5-2. Factory default settings.....	46
5-3. Expressing the texture of objects (detail enhancement) .....	46
5-4. Basic settings for Detail .....	48
Detail control.....	48
Detail coring control.....	49
Knee APE level control.....	50
5-5. Expressing the gradation of a picture (Knee, Gamma).....	51
Gamma settings.....	53
Black gamma and Black gamma range controls.....	59

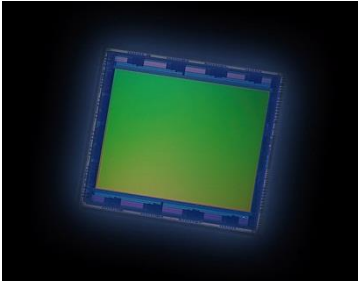
6. After recording .....	60
6-1. Connecting to PC/Mac .....	61
6-2. File structure of SD memory card .....	61
6-3. Folder name structure for MOV/MP4 folders .....	62
7. Appendix .....	63
7-1. Recording time in each video setting .....	64
7-2. Output signal formats .....	66
1. System frequency: 59.94Hz, output bit depth: 4:2:2(8bit) .....	66
2. System frequency: 59.94Hz, output bit depth: 4:2:2(10bit) .....	67
3. System frequency: 50.00Hz, output bit depth: 4:2:2(8bit) .....	68
4. System frequency: 50.00Hz, output bit depth: 4:2:2(10bit) .....	69
7-3. Dimensions (mm) .....	70
7-4. Accessories .....	71
7-5. Revision history .....	72

# 1. Image sensor & record formats



# 1. Image sensor & record formats

The AG-DVX200 is a professional camera recorder, featuring a large 4/3 image sensor, x13 optical zoom lens, and various record formats from SDTV and Full HD up to UHD (3840x2160) and 4K (4096x2160) resolutions.



Total number of effective pixels in each record format

FHD	15.49 M pixels
UHD @59.94p/50.00p	8.71 M pixels
UHD @29.97p/25.00p	12.89 M pixels
4K @24.00p	13.35 M pixels

The 4/3 large imager allows you to create an attractive image expression with shallow depth of field.



# 1. Image sensor & record formats

## 1-1. Record modes

An Ultra High Definition (UHD: 3840x2160) image, (which has four times higher density resolution than FHD video) and 4K (4096x2160 at 24.00p) images, can be selected. It is also possible to select Full High Definition (FHD: 1920x1080) image for recording if required.

	Resolution	Aspect ratio	Frame rate	Bit rate	Video	Audio	File extension
4K	4096x2160	17:9	24.00p	100Mbps	Long GOP	LPCM	MP4, MOV
UHD	3840x2160	16:9	59.94p, 50p	150Mbps	Long GOP	LPCM	MP4, MOV
			29.97p, 25p, 23.98p	100Mbps			
FHD (Full HD)	1920x1080	16:9	59.94p, 50p	200Mbps	ALL-Intra	LPCM	MP4, MOV
			29.97p, 25p, 23.98p				
			59.94p, 50p	100/50Mbps	Long GOP		
			29.97p, 25p, 23.98p				
59.94i, 50i	50Mbps						
AVCHD	1920x1080	16:9	59.94p, 50p	25Mbps	Long GOP	AC3	AVCHD
			59.94i, 50i	21/17Mbps			
			23.98p	21Mbps			
	1440x1080	59.94i, 50i	5Mbps				
	1280x720	59.94p, 50p	8Mbps				
	720x480	16:9/ 4:3	59.94i	9Mbps			
720x576	50i						

## 1-2. Recording in different codecs with dual memory card slots

Simultaneous recording with two different codecs is possible. It allows users to record high quality UHD image for main recording while capturing light-weight FHD images for scenario checks etc.

Main recording			Sub recording (50Mbps mode)			Sub recording (8Mbps mode)		
Format	Bit rate	A	Format	File	A	Format	File	A
UHD@29.97p	100M	LPCM (2Ch, 48kHz, 16-bit)	+	FHD@29.97p	MP4, MOV	FHD@29.97p	MOV	LPCM 2Ch
UHD@25p	100M		+	FHD@25p				
UHD@23.98p	100M		+	FHD@23.98p				
FHD@59.94p	200M		+	-	-	FHD@59.94p		
FHD@59.94p	100M		+	-	-	FHD@59.94p		
FHD@50p	200M		+	-	-	FHD@50p		
FHD@50p	100M		+	-	-	FHD@50p		
FHD@29.97p	200M		+	-	-	FHD@29.97p		
FHD@25p	200M		+	-	-	FHD@25p		
FHD@23.98p	200M		+	-	-	FHD@23.98p		

or

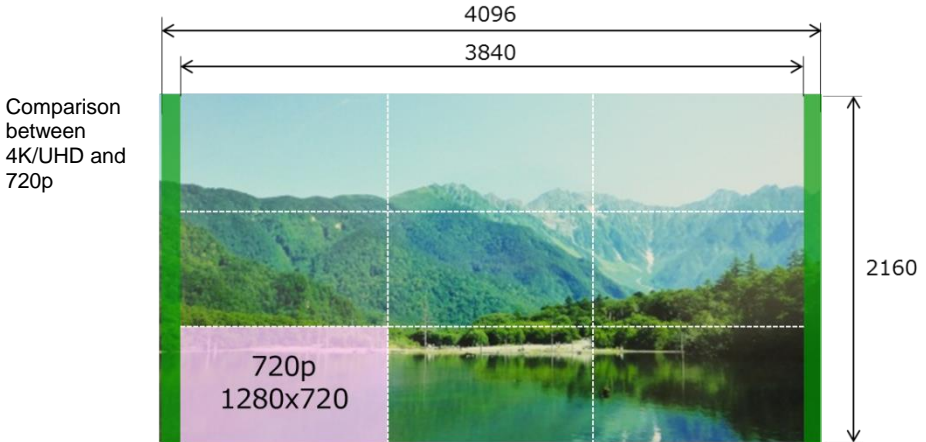
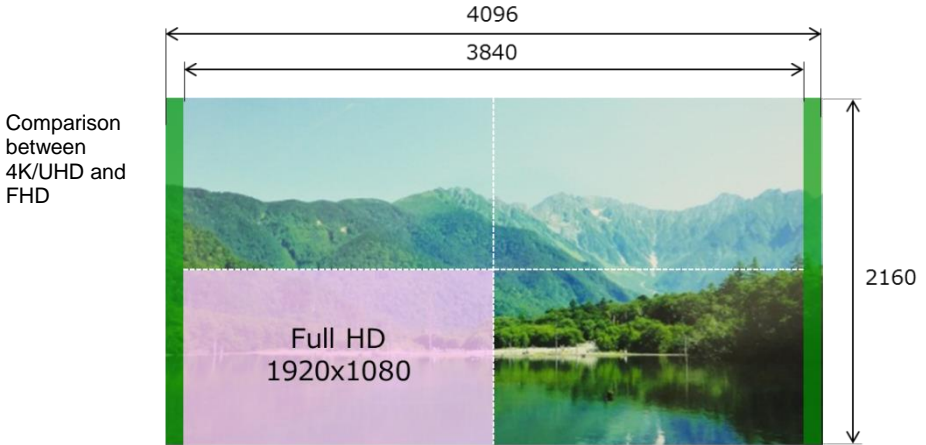
\* UHD = 3840x2160, FHD = 1920x1080

\* Unit of Bit rate = Mbps

# 1. Image sensor & record formats

## 1-3. Image size comparison between 4K/UHD and HD formats

The UHD (3840x2160) image is four times sharper than an FHD 1080p image (nine times that of 720p). And the 4096x1080 resolution (referred to as "4K" on AG-DVX200), which is often used for cinema shooting, has a slightly wider image aspect ratio of 17:9. In comparison to a UHD image, this is an extra 256 pixels in the horizontal direction.



Record format	Resolution	Aspect ratio
4K	4096 x 2160	17:9
UHD (Ultra HD)	3840 x 2160	16:9
FHD (Full HD)	1920 x 1080	16:9



# 2. Preparation before Shooting

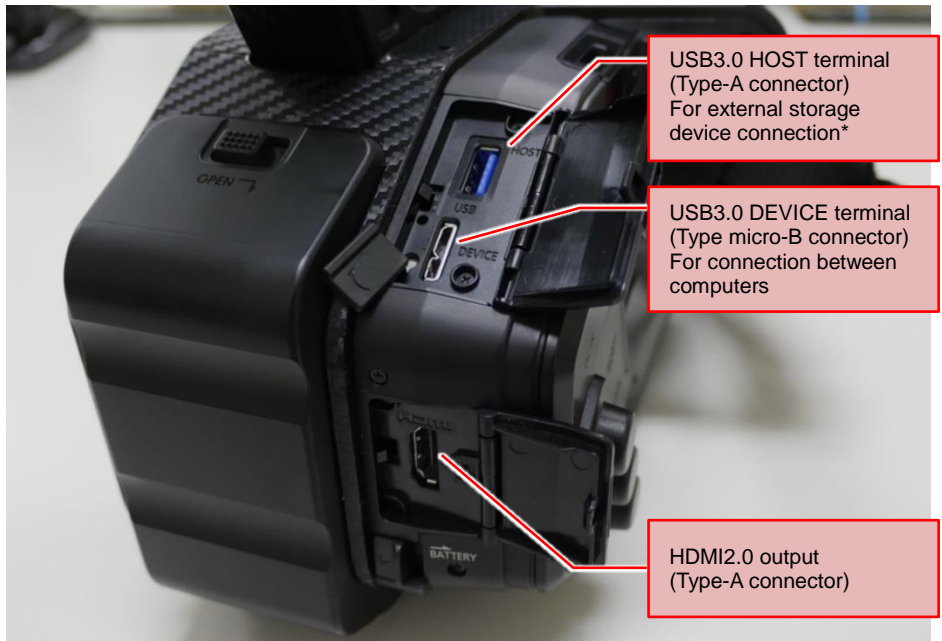
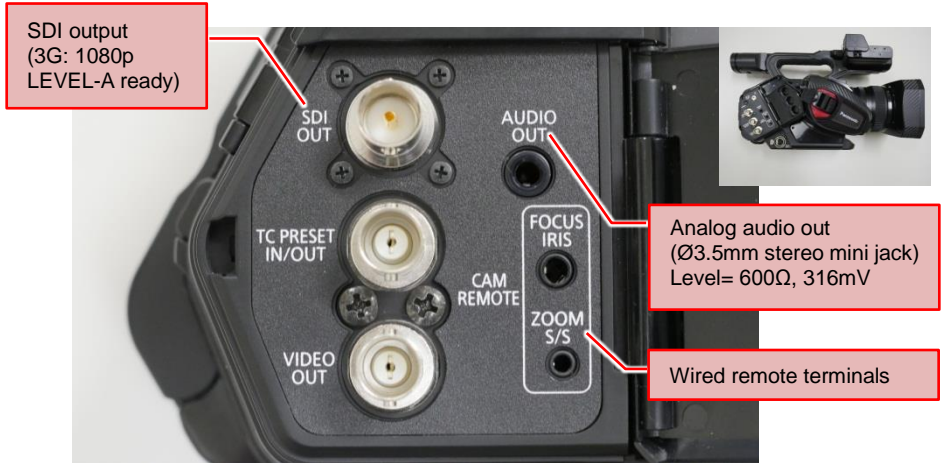




## 2. Preparation before shooting

### 2-1. Major IN/OUT connectors

Image resolution of HDMI, SDI and VIDEO OUT signals vary and will depend on the system settings. See 7-2. Output signal (P.66) for the details.



Visit the following website for information of tested external USB storage devices.

<http://pro-av.panasonic.net/en/products/ag-dvx200/index.html>

# 2. Preparation before shooting

## 2-2. Record mode settings

Set the record file format type, frequency, etc. with MENU > "SYSTEM MODE" where the following menu items are available.

### MENU > SYSTEM MODE

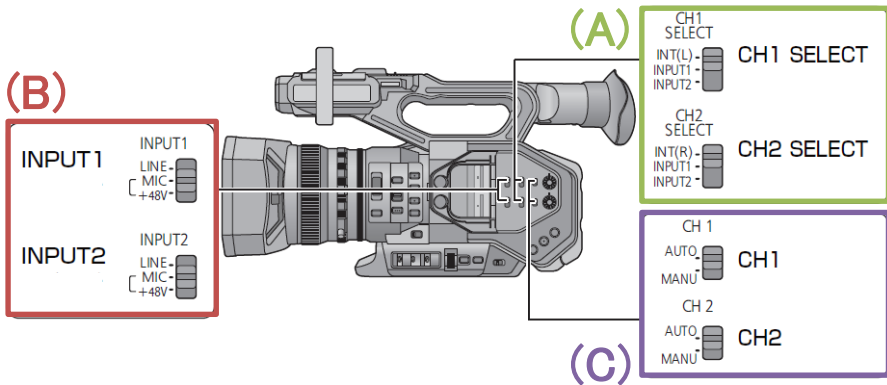
- SYSTEM FREQ : 59.94Hz or 50.00Hz
- OUTPUT BITS : 4:2:2 8bit (\*)
- REC MODE : MOV, MP4 or AVCHD
- REC FORMAT : Choose a combination of the number of pixels and bitrate (see P.66)

\* By choosing "4:2:2 10bit" output mode, superb images can be recorded from the HDMI OUT or SDI OUT using external recorders. When "4:2:2 10bit" mode is chosen, built-in SD memory card recorder does not work.

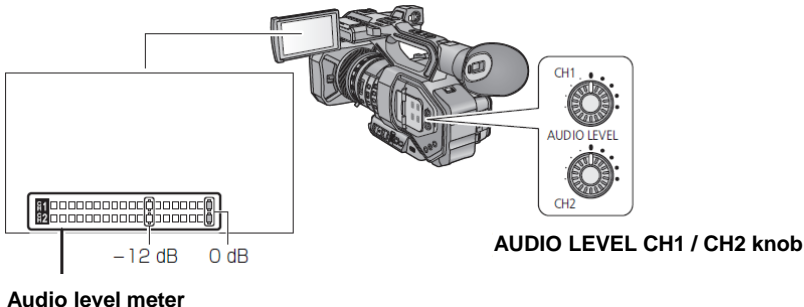
## 2-3. Audio input settings

The AG-DVX200 can handle up to 2 channels of audio and record them.

1. Set **switches (A)** for audio source selection (built-in MIC / external)
2. When external input is chosen, set attenuation type (LINE, MIC) and phantom powering option with **switches (B)**. Input levels for LINE and MIC inputs can be set with MENU > AUDIO SETUP.
3. Set record level adjustment (AUTO / MANUAL) with **switches (C)**.



Audio record level can be set with the AUDIO LEVEL knob when (C) is set to MANU (MANUAL).



## 2. Preparation before shooting

### 2-4. Record modes and required speed class of SD memory cards

SD memory cards require a higher writing speed when recording at high bitrates. The following table shows the minimum speed class necessary for each bitrate.

Record mode	Record bit rate	Minimum required speed class	Speed class symbols
MOV/MP4	100Mbps or higher	UHS Speed Class3 (*1)	<b>U3</b>
	50Mbps	UHS Speed Class1	<b>U1</b>
		Class10	<b>CLASS10</b>
AVCHD	5 to 28Mbps	Class4	<b>CLASS4</b>

\*1: If "UHD 2160/59.94p 150M" or "UHD 2160/50.00p 150M" record mode is selected, your chosen SD memory card needs to meet or exceed 64GB SDXC, UHS Speed Class3 specifications. Only cards of this type can be used.

### 2-5. Mounting to Tripod

The AG-DVX200 has two different standard screw sizes, industrial standard **1/4-20UNC** size and broadcast equipment standard **3/8-16UNC** size.

Use screws shorter than 5.5mm in length, otherwise damage may occur to internal parts.

**3/8-16UNC** ——— **1/4-20UNC**



# 3. MENU settings



# 3. MENU settings

## 3-1. MENU items overview

### MENU

— SCENE FILE (Image related settings)	[P.14]
— SYSTEM MODE (Fundamental settings such as CODEC etc.)	[P.16]
— USER SWITCH (Assign functions to USER buttons)	[P.17]
— SWITCH SETTING (Gain, WB and other operation related settings)	[P.20]
— AUTO SWITCH SETTING (Function assignment for full auto mode)	[P.24]
— RECORDING SETUP (Recording related such as Pre-REC, TC set)	[P.25]
— AUDIO SETUP (Input gain and other audio related settings)	[P.26]
— OUTPUT SETUP (HDMI, SDI, EVF/LCD output related settings)	[P.27]
— DISPLAY SETTING (Selection of items to be shown on EVF etc.)	[P.28]
— OTHER FUNCTIONS (Media format, calendar setting ets.)	[P.30]
— NETWORK SETUP (Wi-Fi related settings)	[P.31]
— MAINTENANCE (Firmware version display etc.)	[P.31]

# 3. MENU settings

## SCENE FILE

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

Menu item	Description	Value (Factory default setting underlined)
CUSTOMIZE SCENE	Recall scene files.	SCENE1 - SCENE6
SCENE FILE	Load / Save custom scene files to/from SD memory cards.	LOAD / SAVE
⑩ VFR MODE	Turn ON/OFF variable frame record mode.	ON / <u>OFF</u>
FRAME RATE	Adjust frame rate. Adjustable range is from 2fps to 120fps	60fps
SYNCHRO SCAN	Set shutter speed for synchro scan mode.	Adjustable range varies depending on system frequency setting.
MASTER DETAIL	Adjust image contour correction level for entire image.	-31 - <u>0</u> - +31
DETAIL CORING	Adjust threshold level of image contour correction.	0 - <u>1</u> - 60
SKIN TONE DETAIL	Adjust level of softness effect for a certain color tone (flesh tone).	ON / <u>OFF</u>
V DETAIL LEVEL	Adjust image contour correction level for vertical direction.	-7 - <u>0</u> - +7
KNEE APE LEVEL	Set KNEE compression level for a very bright part.	0, 1, <u>2</u> , 3, 4, 5
RB GAIN CONTROL SETTING	Adjust color balance for each white balance memory position (A, B and PRST).  This item does not function when white balance mode is set to "ATW".	R GAIN: -30 - <u>0</u> - +30 B GAIN: -30 - <u>0</u> - +30 GAIN OFFSET: ON / <u>OFF</u>
CHROMA LEVEL	Adjust saturation of color.	-70 - <u>0</u> - +30
CHROMA PHASE	Adjust tone of color.	-31 - <u>0</u> - +31
MATRIX	Recall color presets.	NORM1: Suitable for shooting outdoors or indoors under halogen lighting. NORM2: Color is slightly more vivid than "NORM1". FLUO: Suitable for shooting indoors under fluorescent lighting. CINE-LIKE: Suitable for shooting with cinema-like image.
COLOR CORRECTION SETTING	Adjust color tone and saturation. This has an effect on 16 different individual color phases.	-63 - 0 - +63
MASTER PED	Adjust master black level	-150 - <u>0</u> - +150

### 3. MENU settings

#### SCENE FILE <continued>

Menu item	Description	Value (Factory default setting underlined)
GAMMA MODE	Choose image contrast and gradation according to the scene.	<u>HD/ SD/ FILMLIKE1/ FILMLIKE2/ FILMLIKE3/ CINE-LIKE V/ CINE-LIKE D</u>  See P.53 for details about differences among the effects of these gamma modes.
BLACK GAMMA	Adjusts gamma characteristics in darker signal areas.	-8 - <u>0</u> - +8
BLACK GAMMA RANGE	Set the upper limit of compression/expansion level of black gamma control.	1: Set the limit at approx.20% of video level 2: Set the limit at approx.30% of video level 3: Set the limit at approx.40% of video level
KNEE MODE	Set operation mode of knee function (compress bright areas to avoid an overexposed image).	<u>AUTO</u> / MANUAL / OFF
KNEE MASTER POINT	Sets the signal level where video image compression begins.	80.0 - <u>93.0</u> - 107.0
KNEE MASTER SLOPE	Adjusts slope angle when in MANUAL KNEE mode.	0 - <u>85</u> - 99
DRS	Turn ON/OFF Dynamic Range Stretcher (DRS) function.	ON / <u>OFF</u>
DRS EFFECT	Sets effect level of DRS	<u>1</u> / 2 / 3  Better results of dynamic range stretcher can be expected when a higher number is chosen. However, noise level will also become higher.
AUTO IRIS LEVEL	Turn ON/OFF automatic aperture level control.	<u>ON</u> / OFF
AUTO IRIS LEVEL EFFECT	Set the target brightness level in auto iris mode.	-50 - <u>0</u> - +50
V-Log L MODE	Turn ON/OFF the V-Log L mode to capture the image with wider latitude of 12 stops.	ON / <u>OFF</u>
FLASH BAND COMPENSATION	Turn ON/OFF the image compensation function, which allows removing flash-band effects from an image.	ON / <u>OFF</u>
NR CONTROL (v1.81 or later)	Sets noise reduction level. Effect becomes stronger when value is increased, and image aliasing could be seen in exchange for that.	-7 - <u>0</u> - +7



### 3. MENU settings

#### SYSTEM MODE

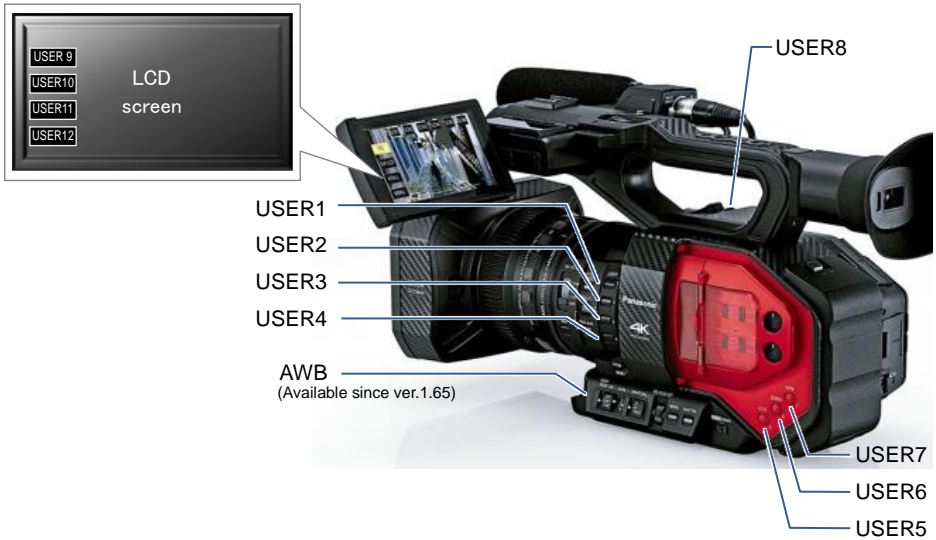
Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

Menu item	Description	Value (Factory default setting underlined)
SYSTEM FREQ	Set system frequency	<u>59.94Hz</u> / 50.00Hz
OUTPUT BITS	Set image quality of signals from HDMI and SDI outputs.	4:2:2(10bit) / <u>4:2:2(8bit)</u>
⑩ REC MODE	Set record file format.	MOV / <u>MP4</u> / AVCHD
⑩ REC FORMAT	Set image quality of video to be recorded. (resolution, frame rate, and bit-rate)	Available formats vary depending on the system frequency and REC mode settings. See P.66 for the details.
OUTPUT FORMAT	Set external output image quality when OUTPUT BITS is set to "4:2:2(10bit)".	Available formats vary depending on the system frequency setting. See P.66 for the details.
ASPECT CONVERT	Set image aspect ratio when REC FORMAT is set to SA 480/59.94i or SA 576/50.00i.	SIDE CROP / LETTERBOX / SQUEEZE
EXTENDED SENSITIVITY	Expand adjustable range of gain While this function is ON: -6dB to 24dB (ISO250 to 8000) While this function is OFF: 0dB to 24dB (ISO500 to 8000)  *HIGH SENS. MODE menu item is fixed to "HIGH SENS" while this feature is set to ON.	ON / <u>OFF</u>
HIGH SENS. MODE	Set camera sensitivity mode. HIGH SENS mode is suitable for shooting in dark environments.	<u>NORMAL</u> / HIGH SENS  "H.SENS" is indicated on the viewfinder while HIGH SENS mode is activated.
CAMERA NUMBER SET	Set camera identification number. This number is used as a part of footage folder's title when MOV or MP4 file format is selected.  See P.62 for the footage folder name structure.	<u>0</u> - 16

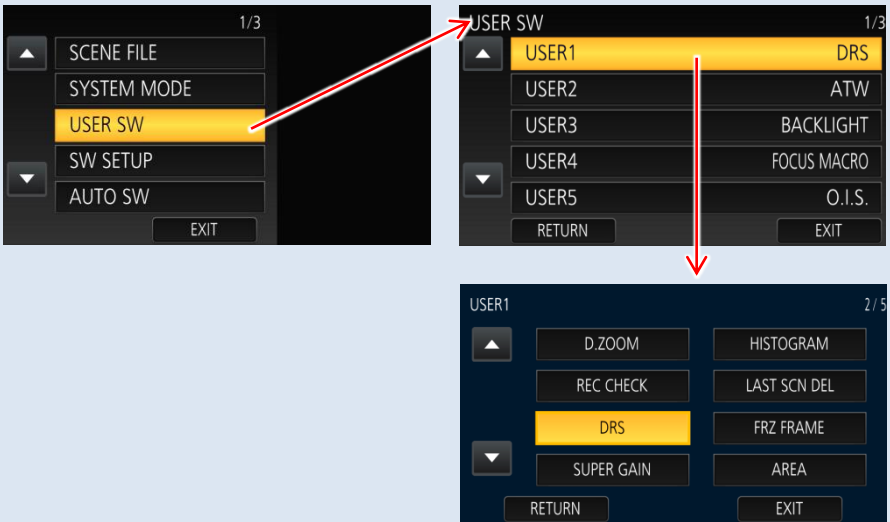
# 3. MENU settings

## USER SWITCH feature

44 features can quickly be recalled from 13 user assignable buttons. (9 of them are physical buttons and 4 are available as a part of the touch screen.)



**How to assign?** MENU > USER SWITCH > Assign any function to any button.



\* See next page for assignable functions including their details.

# 3. MENU settings

## USER SWITCH

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to “4:2:2 10bit”.

The following table shows all functions that can be assigned to the USER buttons.

Menu item	Description
INHIBIT	The USER button is disabled (nothing is assigned).
FOCUS ASSIST <sup>1,2</sup>	Turn ON/OFF the FOCUS ASSIST function. See 4-2. Understanding Focus assist features (P.34) for further details of this function.
BACKLIGHT	Switch auto iris mode to backlight mode. The backlight mode can prevent underexposure when the lighting is illuminating from behind the subject.
SPOTLIGHT	Switch auto iris mode to Spotlight mode. The spotlight mode optimizes iris control behavior when the contrast around the subject is high (example: the subject is a spot light etc.)
BLACK FADE	Apply fade-in/out effect to video (black) and audio.
WHITE FADE	Apply fade-in/out effect to video (white) and audio.
ATW	Switch white balance mode to ATW (Auto Tracking White).
ATW LOCK	Fix the white balance aligned by ATW mode.
⑩ D.ZOOM	Use Digital Zoom (electronic image magnification) feature. The magnification ratio can be chosen from x2, x5, x10, or can be toggled through them.
HISTOGRAM	Display distribution of brightness of the image for a quick check of exposure. The histogram chart consists of “brightness” on the horizontal axis, and “frequency of appearance” on the vertical axis. This chart’s position can be moved by touching the built-in LCD screen.
⑩ REC CHECK	Plays last 2 seconds of the last recorded clip on the SD memory card.
⑩ LAST SCN DEL	Delete the last clip from the SD memory card.
DRS	Turn ON/OFF the dynamic range stretcher function. The DRS works to minimize saturated blacks and overexposure. Its effect level can be adjusted using the “DRS EFFECT” item of the SCENE FILE menu.
FRZ FRAME	Turn ON/OFF freeze frame feature. A still image is on the screen while this feature is working.
SUPER GAIN	Turn ON/OFF the Super Gain control. The gain value to be boosted can be set using the “SUPER GAIN” item of the SWITCH SETTING menu. [SUPER GAIN values that can be set] - 30dB or 36dB when a displayed unit of gain is “dB”. - ISO16000 or ISO32000 when a displayed unit of gain is “ISO”.
AREA	The following features can be enabled by touching (pointing) the subjects on the built-in LCD screen.  [Selectable items for AREA mode] INH: No function is assigned. FOCUS: Adjust the focus so that the pointed subject is in focus. IRIS: Adjust the iris so that aperture level is appropriate for the pointed subject. Y GET: Indicate Y level of the pointed subject. FOCUS/IRIS: Adjust both focus and iris for the pointed subject. FOCUS/YGET: Adjust focus and indicate Y level of the pointed subject.
FOCUS TRANS	Execute FOCUS TRANSITION (recalling focus position presets) function. See 4-8. Understanding Focus transition (P.40) for further details.

### 3. MENU settings

#### USER SWITCH <continued>

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".  
The following table shows all functions that can be assigned to the USER buttons.

Menu item	Description
CAPTURE	Create a still image from camera image or recorded video.
EVF/LCD DETAIL	Make focusing easier by enhancing the subject's edge on the viewfinder and built-in LCD monitor. The level of this enhancement and the frequency can be set using the "EVF/LCD PEAK LEVEL" and "EVF/LCD PEAK FREQ." items of the DISP menu.
IR REC	Turn ON/OFF the Infrared shooting mode.
LEVEL GAUGE	Display a level gauge on the viewfinder for the horizontal and vertical axis'. Inclinations can be indicated up to approx. 45 degrees in the horizontal, and up to approx. 10 degrees in the vertical directions.
BACK GROUND	Start or pause the recording in slot No.2 when the "Background record function" is enabled.
FLASH BAND	Turn ON/OFF the image compensation function, which allows removing flash-bands from the image.
⑩ PRE-REC	Turn ON/OFF the pre-record mode. This mode allows the camera to start recording video and audio approx. 4 sec (in MOV/MP4 mode, 3 sec in the AVCHD mode) before the REC/PAUSE button is pressed.
WFM	Display the Waveform or Vector scope on the built-in LCD monitor. Open the "WFM TYPE" item of the SWITCH SETTING menu to select the item (Waveform or Vector scope).
FAST ZOOM	Increase servo zoom speed. <i>Note: When this feature is turned ON, motor's operation sound becomes louder, and may be audible and recorded.</i>
EVF ON/OFF	Turn ON/OFF the EVF display.
A.IRIS LEVEL	Turn ON/OFF the level adjustment mode for auto iris.
ZEBRA	Turn ON/OFF the ZEBRA indicator.
O.I.S	Turn ON/OFF the optical image stabilizer.
SCENE FILE	Save or load scene file data between an SD memory card and the camera.
AUTO REC	Turn ON/OFF sending the embedded REC-Start/-Stop signal to external recorders connected via SDI OUT.
AF AREA	Adjust the size of window where auto focus (AF) is enabled via jog dial.
⑩ VFR	Turn ON/OFF variable frame rate mode.
FOCUS MACRO	Turn ON/OFF the macro mode. With macro mode ON, focus adjustable range at Wide-end is from 10cm to infinity. (With macro mode OFF, from 1meter to infinity.)
i. ZOOM	Turn ON/OFF the "i.Zoom" mode which allows the camera to magnify the image (electronically) up to x20 at the Tele-end. This mode can only be enabled when resolution setting is 1920x1080 or lower.
LOG VIEW ASSIST	Temporarily show the image based on Rec.709 color space when the V-Log L mode is enabled.
LCD/EVF OUTPUT	Select the display device. (Always displayed on either Built-in LCD monitor or EVF, or automatically switched by the eyepiece sensor)

### 3. MENU settings

#### USER SWITCH <continued>

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

The following table shows all functions that can be assigned to the USER buttons.

Menu item	Description
USB MODE	Enable/disable the USB connection mode.
PUSH AUTO	Focus mode becomes AUTO while keep pressing the button in MANUAL focus mode.
SLOT SEL	Select card slot to be recorded or playback.
AWB	Perform auto white balance adjustment.
MENU	Open MENU.

# 3. MENU settings

## SWITCH SETTING

Menu item	Description	Value(Factory default setting underlined)
IRIS RING	Set the IRIS control direction of the IRIS ring.	<u>DOWN OPEN</u> / UP OPEN
LOW GAIN	Set GAIN value when the gain selector is set to "L".	GAIN/ISO DISPLAY = GAIN 0dB – 24dB GAIN/ISO DISPLAY = ISO ISO500 – ISO8000
MID GAIN	Set GAIN value when the gain selector is set to "M".	GAIN/ISO DISPLAY = GAIN 0dB – <u>6dB</u> - 24dB GAIN/ISO DISPLAY = ISO ISO500 – ISO8000
HIGH GAIN	Set GAIN value when the gain selector is set to "H".	GAIN/ISO DISPLAY = GAIN 0dB – 12dB - 24dB GAIN/ISO DISPLAY = ISO ISO500 – ISO8000
SUPER GAIN	Set GAIN value in the SUPER GAIN mode, which is available as one of the user assignable functions.	GAIN/ISO DISPLAY = GAIN 30dB / 36dB GAIN/ISO DISPLAY = ISO ISO16000 / ISO32000
O.I.S	Turn ON/OFF optical image stabilizer.	<u>ON</u> / OFF
HYBRID O.I.S	Turn ON/OFF electrical image stabilizer which works in addition to the optical one.	<u>ON</u> / OFF
CUSTOM O.I.S	OIS characteristic customization (Blur Amplitude and Frequency) can be used when this item is set to ON.	ON / <u>OFF</u>
BLUR AMPLITUDE	Customize characteristic of amplitude swing for OIS.	1 / 2 / <u>3</u> / 4 / 5
BLUR FREQ	Customize characteristic of frequency swing for OIS.	1 / <u>2</u> / 3
ATW SET	Assign Auto Tracking White (ATW) to any position of WHITE BAL selector.	<u>OFF</u> / Ach / Bch / PRST
ATW SPEED	Set color transition speed of ATW	FAST / <u>NORMAL</u> / SLOW
ATW TARGET R	Fine-tune the ATW adjustment result (to make it more/less Reddish).	---
ATW TARGET B	Fine-tune the ATW adjustment result (to make it more/less Blueish).	---
WB PRESET	Set white balance mode when WHITE BAL selector is set to PRST.	<u>3200K</u> / 5600K / VAR* *VAR : Variable
WB VAR	Adjust color temperature of the image when WB PRESET is set to VAR (variable) mode.	2000K – <u>3200K</u> – 15000K
MF ASSIST	Focus mode is momentarily set to "AUTO" immediately after manual focusing.	ON / <u>OFF</u>
MF ASSIST MODE	Choose the window for focus adjustment by MF ASSIST.	<u>CENTER AREA</u> : Detect the center part of the screen. MULTI AREA: Detect the subject currently focused on.
FOCUS ASSIST	Set focus assist type	EXPAND / PEAKING / <u>BOTH</u>

### 3. MENU settings

#### SWITCH SETTING <continued>




Menu item	Description	Value (Factory default setting underlined)
PEAKING COLOR	Set highlighting color for the peaking focus assist.	<u>Red</u> / Blue / Yellow / White
PEAKING LEVEL	Set highlighting level of the peaking focus assist.	-7 - <u>0</u> - +7
FOCUS RING DRIVE	Set the type of focus control by the focus ring.	<u>SPEED</u> (*) / COARSE / FINE / FINE(WIDE) * Focus control speed varies in response to rotation speed of the focus ring.
FOCUS MACRO	Turn ON/OFF macro mode.	ON / <u>OFF</u> Focus adjustable range at wide-end is from 10cm to infinity with MACRO: ON. (from 1meter to infinity with MACRO: OFF).
A.IRIS SPEED	Set control speed in auto iris mode.	FAST / <u>NORMAL</u> / SLOW
AREA MODE	Choose the feature that works when tapping the subject on the built-in LCD.	INH, FOCUS, IRIS, YGET, <u>FOCUS/IRIS</u> , FOCUS/YGET  INH: No function is assigned. FOCUS: Adjust the focus so that the pointed subject is in focus. IRIS: Adjust the iris so that aperture level is appropriate for the pointed subject. Y GET: Indicate Y level of the pointed subject. FOCUS/IRIS: Adjust both focus and iris for the pointed subject. FOCUS/YGET: Adjust focus and indicate Y level of the pointed subject.
CUSTOM AF	AF characteristic customization (AF Speed and sensitivity) can be used when this item is set to ON.	ON / <u>OFF</u>
AF SPEED	Set speed of auto focus control.	-5 - <u>0</u> - +5
AF SENSITIVITY	Set sensitivity of auto focus control.	0 - <u>5</u> - 10
AF AREA WIDTH	Set the size of window where auto focus is enabled.	Use the jog-dial to adjust this window size.
WFM	Display the Waveform or Vector scope.	ON / <u>OFF</u>
WFM TYPE	Choose WFM display type.	<u>WAVE</u> / VECTOR / WAVE/VECTOR
WFM POSITION	Set WFM display position.	<u>TOP/LEFT</u> / TOP/RIGHT / BOTTOM/LEFT / BOTTOM/RIGHT
ZEBRA	Set type of light indication (Zebra or Spot meter).	ZEBRA1 / ZEBRA2 / MARKER / <u>OFF</u>



### 3. MENU settings

#### SWITCH SETTING <continued>

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

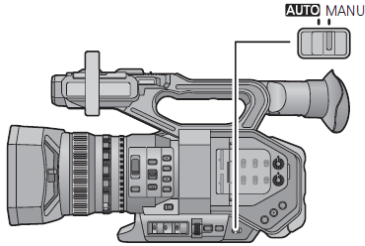
Menu item	Description	Value (Factory default setting underlined)
ZEBRA MODE	Set the display period of ZEBRA.	CONTINUE / <u>MOMENT</u> (5sec)
BARS TYPE	Set the type of color bars.	<p>TYPE 1</p>  <p>TYPE 2</p>  <p>TYPE 3</p> 
⑩ SUB REC BUTTON	Use one of the REC buttons on the carrying handle.	<u>ACTIVE</u> / INHIBIT
FAST ZOOM	Increase servo zoom speed.	ON / <u>OFF</u> <i>Note: When this feature is turned ON, motor operation sound becomes louder, and could be audible and recorded.</i>
SUB ZOOM	Use one of the zoom levers on the carrying handle.	OFF / 1 / 2 / 3 / <u>4</u> / 5 / 6 / 7 * Zoom speed becomes faster as the number increases.
⑩ DIGITAL ZOOM	Set magnification ratio of the digital zoom.	x2 / x5 / x10 / <u>TOGGLE</u>
i. ZOOM	Activate electronic image zoom feature, which can extend zoom ratio up to x20 while maintaining a certain image quality.	ON / <u>OFF</u> * Enabled when resolution setting is 1920x1080 or lower.
ZOOM/FOCUS	Set a way to operate ZOOM and FOCUS while under controlled from the AG ROP app. (see P.エラー! ブックマークが定義されていません。)	<u>IP REMOTE</u> / CAMERA

# 3. MENU settings

## AUTO SWITCH SETTING

Whether to use the following features or not can be individually selected while in the automatic mode.

### Using the automatic mode



#### AUTO/MANUAL selector

Slide the selector to switch between AUTO mode and MANUAL mode.

The **A** Symbol is indicated on the viewfinder / built-in LCD screen while the mode is AUTO.

Menu item	Description	Value (Factory default setting underlined)
A.IRIS	Auto iris	<u>ON</u> / OFF
AGC	Auto gain control	<u>ON</u> / OFF
AGC LIMIT	Set the upper limit of the amplifier while in AUTO mode.	GAIN/ISO DISPLAY = GAIN 3 / 6 / 9 / <u>12</u> / 15 / 18 / 21 / 24dB  GAIN/ISO DISPLAY = ISO ISO1000 / <u>2000</u> / 4000 / 8000
AUTO SHUTTER	Auto shutter	<u>ON</u> / OFF
AUTO SHUTTER LIMIT	Set the upper limit of the shutter speed while in AUTO mode.	1/100, 1/120, 1/125, <u>1/250</u> , OFF (1/120: displayed in 59.94Hz mode only) (1/125: displayed in 50.00Hz mode only)
AUTO SLOW SHTR	Set auto slow shutter mode (ON or OFF) while in AUTO mode.  The auto slow shutter mode adjusts shutter speed (to make it slower) when light intensity is not sufficient.	ON / <u>OFF</u>
ATW	Auto Tracking White	<u>ON</u> / OFF
AF	Auto Focus	<u>ON</u> / OFF

# 3. MENU settings

## RECORDING SETUP

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

Menu item	Description	Value (Factory default setting underlined)
⑩ MEDIA SELECT	Select the media slot for recording.	SD CARD1 / SD CARD2
⑩ 2SLOT FUNC.	Set the record mode, which uses dual memory card slots.	<u>OFF</u> / RELAY / SIMULTANEOUS / BACKGROUND / DUAL CODEC See P.35 for the details.
⑩ DUAL CODEC REC	Select the codec for sub recording. Available in DUAL CODEC mode only.	FHD 50Mbps / <u>FHD 8Mbps</u>
⑩ INTERVAL REC	Set record interval time (pause time) of time-lapse recording.	<u>OFF</u> / 1SEC / 10SEC / 30SEC / 1MUTE / 2MUTES
⑩ PRE-REC	Turn ON/OFF the pre-record mode. This mode allows the camera to start recording the video and audio (approx. 4 sec in the MOV/MP4 mode, 3 sec in the AVCHD modes) before the REC button is pressed.	ON / <u>OFF</u>
INFRARED REC	Turn ON/OFF the infrared record mode, allowing image capture in dark locations.	ON / <u>OFF</u>
FOCUS TRANSITION	Register positions for focus transition function. (See P.40)	SET / <u>OFF</u>
FOCUS TRANSITION TIME	Set transition time from one position to another.	Direct / <u>2</u> – 15sec / 20sec / 30sec / 45sec / 60sec / 90sec / FASTEST
FOCUS TRANSITION REC	Execute the focus transition function as soon as REC button is pressed. This menu item selects which position to start with.	1 / 2 / 3 / <u>OFF</u>
FOCUS TRANSITION WAIT	Set pause time until focus transition starts.	<u>0sec</u> / 5sec / 10sec
⑩ TIME STAMP	Allows recording of superimposed date and time on the image.	ON / <u>OFF</u>
DF MODE	Set timecode drop frame mode.	<u>DF</u> / NDF Enabled only when system frequency setting is 59.94Hz.
TCG	Set timecode count mode.	<u>FREE RUN</u> / REC RUN
TC PRESET	Set initial value of timecode.	--
UB PRESET	Set value of users bit	-- Enabled only when record mode is AVCHD.
EXT TC LINK	This item is for timecode synchronization for multi-camera recording purpose. (see P.37)	MASTER / SLAVE

# 3. MENU settings

## AUDIO SETUP

Menu item	Description	Value (Factory default setting underlined)
AUDIO LOW CUT CH1	Reduce the level of low frequency sound on audio channel 1.	ON / <u>OFF</u>
AUDIO LOW CUT CH2	Reduce the level of low frequency sound on audio channel 2.	ON / <u>OFF</u>
AUDIO ALC LINK	Auto Level Control (ALC) effect links audio CH1 and CH2. When this item is set to "ON", ALC works on both CH1 audio and CH2 audio.	ON / <u>OFF</u>  Set the following switch and menu to use this feature. - Set CH1 and CH2 to MANU - Set both AUDIO ALC CH1 and CH2 menu items to "ON".
AUDIO ALC CH1	Use Auto Level Control on audio channel 1.	<u>ON</u> / OFF
AUDIO ALC CH2	Use Auto Level Control on audio channel 2.	<u>ON</u> / OFF
INPUT1 LINE LEVEL	Set audio level of audio channel 1. (LINE level)	+4dBu / <u>0dBu</u>
INPUT2 LINE LEVEL	Set audio level of audio channel 2. (LINE level)	+4dBu / <u>0dBu</u>
INPUT1 MIC LEVEL	Set audio level of audio channel 1. (MIC level)	-40dB / <u>-50dB</u> / -60dB
INPUT2 MIC LEVEL	Set audio level of audio channel 2. (MIC level)	-40dB / <u>-50dB</u> / -60dB

# 3. MENU settings

## OUTPUT SETUP






Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

Menu item	Description	Value (Factory default setting underlined)
OUTPUT SEL	Select video and audio output.	<u>HDMI</u> / SDI / SDI+AV
RESOLUTION	Set resolution of output video signal.	<u>SYSTEM</u> / 1080p / 1080i / DOWN CONV. The type of signal available on the output varies and will depend on REC format setting. See P.66 for the details.
SDI REMOTE	Inserts the REC/PAUSE trigger signal on SDI OUT. This allows the camera to control REC/PAUSE functions of external recorder via SDI OUT signal.	ON / <u>OFF</u>
REMOTE REC LINK	Set the way to control the remote REC/PAUSE of an external recorder.	ON: Remote REC/PAUSE can be performed with the REC button on the AG-DVX200. OFF: Remote REC/PAUSE can be performed with the user assignable buttons (AUTO REC function) on the AG-DVX200.
SDI EDH	EDH signal is embedded in the SDI stream. Enabled in 480i or 576i mode only.	<u>ON</u> / OFF
SDI AUDIO GAIN CHG	Set the audio gain of SDI embedded audio signal.	<u>0dB</u> / -6dB / -12dB
⑩ DOWN CONV.	Set the display mode of a down converted image.	SIDE CROP / LETTERBOX / <u>SQUEEZE</u>
HDMI UHD OUTPUT LIMIT	Set the frame rate limit of HDMI OUT while in UHD 2160/59.94p 150M and UHD 2160/50.00p 150M record modes.	System freq = 59.94Hz <u>59.94p</u> : Output in 2160/59.94p 29.97p: Output in 2160/29.97p System freq = 50.00Hz <u>50.00p</u> : Output in 2160/50.00p 25.00p: Output in 2160/25.00p
HDMI TC OUTPUT	Insert timecode signal on HDMI OUT.	ON / <u>OFF</u>
VOLUME	Headphone volume adjustments can be made with the built-in jog dial.	<u>ON</u> / OFF
TEST TONE	Set the test tone level.	<u>OFF</u> / LEVEL1 (loud) / LEVEL2 (low)
VIDEO SETUP	Set the pedestal setup level. Enabled in 480i mode only.	<u>0%</u> / 7.5%A
LCD/EVF OUTPUT	Set the way to use the LCD and EVF monitors.	<u>AUTO</u> / LCD / EVF

### 3. MENU settings

#### DISPLAY SETTING

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to "4:2:2 10bit".

Menu item	Description	Value (Factory default setting underlined)
ZEBRA DETECT1	Set the zebra pattern (right downward). 	50% - <u>80%</u> - 105%
ZEBRA DETECT2	Set the zebra pattern (right upward). 	50% - <u>100%</u> - 105%
MARKER	Display the spot meter marker.	<u>ON</u> / OFF
GUIDE LINES	Select and show the guide line pattern.	 /  /  / <u>[OFF]</u>
SAFETY ZONE	Select and show the safety zone marker.	16:9 <u>90%</u> / 4:3 / 14:9 / 1.85:1 / 17:9 / 2:1 / 2.35:1 / 2.39:1 / OFF  *The following items can be selected when SA 480i or 576i mode is selected and "SIDE CROP" is selected for the ASPECT CONV menu item. ➔ 4:3 <u>90%</u> / 4:3 / OFF
CENTER MARKER	Show the center marker.	<u>ON</u> / OFF
REC COUNTER	Set the counting method of record counter.	TOTAL / <u>SCENE</u>
SHUTTER DISPLAY CHG	Set the unit of shutter speed to be displayed.	<u>sec</u> / deg
GAIN/ISO DISPLAY CHG	Set the unit of GAIN to be displayed.	<u>GAIN</u> / ISO
ZOOM/FOCUS	Set the unit of zoom and focus to be displayed.	<u>NUMBER</u> , mm/feet, mm/m, OFF
⑩ VIDEO OUT OSC	Show the EVF characters on an external video monitor.	ON / <u>OFF</u>
DATE/TIME	Set the display format of date and time.	<u>OFF</u> / TIME / DATE / DATE&TIME
DATE FORMAT	Set the display format of calendar.	Y/M/D, M/D/Y, D/M/Y  Default setting on each model AG-DVX200PJ, PB : M/D/Y AG-DVX200EJ, EN, ED : D/M/Y AG-DVX200PX: YM/D
LEVEL GAUGE	Show a level gauge to check the pitch and roll levels.	ON / <u>OFF</u>
HISTOGRAM	Display distribution of brightness of the image for a quick check of exposure. The histogram chart consists of "brightness" on the horizontal axis, and "frequency of appearance" on the vertical axis. This chart's position can be moved by touching the built-in LCD screen.	ON / <u>OFF</u>

### 3. MENU settings

#### DISPLAY SETTING <continued>

Menu item	Description	Value (Factory default setting underlined)
AUDIO LEVEL METER	Show audio level meter.	<u>ON</u> / OFF
LENS STATUS	Show the following item information. Zoom, OIS, Iris, Gain, ND filter position, focus position, white balance, shutter speed etc.	<u>ON</u> / OFF
CARD&BATTERY	Show remaining time of SD card and battery.	<u>ON</u> / OFF
OTHER DISPLAY	Show the information other than the following. USER buttons, Guide lines, Safety zone, Center marker, Date&time, Audio level meter, Lens status, remaining time (SD card and battery)	<u>ON</u> / OFF
LCD BACKLIGHT	Set brightness of the built-in LCD monitor.	<u>HIGH</u> / LOW
LCD SET	Adjust image characteristics of the built-in LCD monitor.	COLOR, BRIGHTNESS, CONTRAST
EVF SETTING	Adjust image characteristics of the viewfinder.	COLOR, BRIGHTNESS, CONTRAST
EYE SENSOR	Set sensitivity of the proximity sensor on the viewfinder.	- <u>4</u> - +4
SELF SHOOT	Set display mode of the built-in LCD monitor. Choose "MIRROR" when performing self-portrait recording. (Image can be inverted horizontally.)	<u>MIRROR</u> / NORMAL
EVF COLOR	Turn OFF color image display on the Viewfinder.	<u>ON</u> / OFF
EVF/LCD DETAIL	Turn ON edge enhancement feature on the viewfinder and the built-in LCD monitor for easy focusing.	ON / <u>OFF</u>
EVF/LCD PEAK LEVEL	Set enhancement level in the EVF/LCD DETAIL setting.	-3 - <u>0</u> - +3
EVF/LCD PEAK FREQ.	Set enhancement frequency in the EVF/LCD DETAIL setting.	HIGH / <u>LOW</u>



### 3. MENU settings

#### OTHER FUNCTIONS

Note: Items marked ⑩ will not function when OUTPUT BIT item is set to “4:2:2 10bit”.

Menu item	Description	Value (Factory default setting underlined)
FORMAT MEDIA	SD cards and external drives can be formatted.	---
⑩ MEDIA STATUS	Show remaining record time of SD cards.	---
REC LAMP	Set the tally lamp to be used during the recording.	FRONT / REAR / <u>BOTH</u> / OFF
CLOCK SET	Set the clock.	---
TIME ZONE	Set the time difference between the current location and Greenwich Mean Time (GMT).	---
ALERT SOUND	Set the beep alert volume, which occurs when touching the screen or starting/stopping recording.	[OFF] / <input type="checkbox"/> (Volume low) / <input type="checkbox"/> (Volume high)
ECONOMY (BATTERY)	Turn ON/OFF the economy mode, which automatically turns power OFF when no operation is detected for five minutes while the camera is battery-powered.	ON / <u>OFF</u> *It does not function under the following conditions. -PRE-REC is activated -While in USB connection mode
ECONOMY (AC)	Turn ON/OFF the economy mode, which automatically turns power OFF when no operation is detected for 15 minutes while AC-powered.	ON / <u>OFF</u> *It does not function under the following conditions. -PRE-REC is activated -While in USB connection mode
SYSTEM FREQ	Set system frequency.	59.94Hz / 50.00Hz
USB MODE	Enable/disable the USB connection mode	ON / <u>OFF</u>
USB MODE SELECT	Set USB connection mode.	HOST / <u>DEVICE</u> HOST: When connect to external storages. DEVICE: When connect to PC/Mac.
INITIAL SET	Restore the product to factory settings.	ALL / SCENE / <u>NO</u> SCENE: Initializes customized scene files only.
NUMBER RESET	Return the clip number to “0001” when MOV/MP4 files or still pictures are recorded next time.	---
COLOR TONE	Set different color expression mode (available since firmware Ver.1.51)	<u>NATURAL</u> / Ver.1.4
LANGUAGE	Set the MENU language.	---

### 3. MENU settings

#### NETWORK SETUP

Menu item	Description	Value (Factory default setting underlined>)
USER ACCOUNT	Set a user account information for the AG ROP iPad app. (See P.41)	SET / <u>OFF</u>
WIRELESS SETUP	Set a connection method.	<u>DIRECT</u> / SSID(SELECT) / SSID(MANUAL)
	Sub settings when "DIRECT" is chosen. (Choose it when connect an iPad to AG-DVX200 directly)  <ul style="list-style-type: none"> <li>- SSID: Network ID of the camera.</li> <li>- BAND: Frequency band to be used (<u>2.4GHz</u> / 5GHz)</li> <li>- CHANNEL (2.4GHz): Channel when a Wi-Fi adaptor (2.4GHz) is used.</li> <li>- CHANNEL (5GHz): Channel when a Wi-Fi adaptor (2.4GHz) is used.</li> <li>- Password: Password to be entered at iPad to access the camera. (Factory default: 01234567890123456789abcdef)</li> </ul>	
	Choose "SSID (SELECT)" when connect between an iPad and the camera via a Wi-Fi access point.	
	Choose "SSID (MANUAL)" when connect between an iPad and the camera via a Wi-Fi access point while configuring settings manually.  <ul style="list-style-type: none"> <li>-SSID: Network ID of the camera.</li> <li>-SECURITY TYPE: Security protocol and certification program (<u>WPA2-AES</u> / WPA-AES / WPA2-TKIP / WPA-TKIP / NONE)</li> <li>- Password: Password to be entered to access the access point.</li> </ul>	
Wireless LAN setup	Set network connection related items.	IP Address / Subnet Mask / Gateway / DHCP / MAC Address
CONNECTION HISTORY	Display access log with Wi-Fi access points.	---
NETWORK INITIAL SETTING	Initialize menu items under NETWORK SETUP to factory default.	---
NETWORK SETUP PASSWORD	Set password to allow / ban on changing NETWORK SETUP menu items.	Setup / <u>Delete</u>

#### MAINTENANCE

Menu item	Description	Value (Factory default setting underlined)
VERSION	Show the current firmware version.	---
UPDATE	Executes the firmware update.	---
H METER	Show the following operation hours and times (cumulative) Operation, zoom lever, zoom motor, jog dial.	---

# 4. Understanding advanced features



# 4. Understanding advanced features

## 4-1. Monitoring 4K & UHD image

The AG-DVX200 is equipped with a **HDMI 2.0** output port. It allows the camera to output stunning UHD/59.94p or UHD/50.00p images in playback mode and camera through mode.

**Note:** Output image is down-converted to 1080p from UHD/59.94p and 50p once recording starts.



Acceptable video formats\*

- 4K/24.00p
- UHD/59.94p \*
- UHD/50.00p \*
- UHD/29.97p
- UHD/25.00p
- UHD/23.98p

\*In playback or camera through mode only.  
(i.e. not recording mode).

When monitor TV and/or receiver devices are not **HDMI 2.0** compliant, acceptable frame rate in the devices will usually be limited up to 29.97p at UHD. See user's guide of your device for performance specifications.



Acceptable video formats

- 4K/24.00p
- UHD/29.97p
- UHD/25.00p
- UHD/23.98p

When viewing UHD/59.94p and 50.00p images with a device that does not support HDMI 2.0, but equipped with Four SDI input for UHD (like the Panasonic BT-4LH310), use HDMI2.0 to HD-SDI converter such as AJA HA5-4K.

### Setting HDMI output

1. MENU > OUTPUT SETUP > OUTPUT SEL: HDMI (selectable SDI or HDMI)
2. MENU > OUTPUT SETUP > RESOLUTION: SYSTEM (output signal resolution follows the system setting)

\* See 7-2. Output signal for more details.

# 4. Understanding advanced features

## 4-2. Understanding Focus assist features



The AG-DVX200 is equipped with following two focus assist features to make focusing easier when recording 4K/UHD higher resolution formats. Two different assist modes (EXPAND and PEAKING) can be individually recalled with USER assignable buttons (FOCUS ASSIST1 and FOCUS ASSIST2 modes, available since firmware version 1.65).

### How to use

1. Press the FOCUS ASSIST button located at the left side of the unit or assign the FOCUS ASSIST function to any assignable USER buttons. (MENU > USER SWITCH > any USER button number : FOCUS ASSIST1 or FOCUS ASSIST2)



2. Choose assist type to be recalled with the USER button.  
(MENU > SWITCH SETTING > FOCUS ASSIST1 or 2: EXPAND / PEAKING / BOTH)

<p><b>EXPAND</b></p> 	<p>Part of image can be magnified up to 10 times (x2, x5, x10). The position to be magnified can be specified by tapping the touch screen.</p> <p>Image magnification turns OFF when the REC button is hit.</p>
<p><b>PEAKING</b></p> 	<p>Adding colored highlights to in-focus edges. Highlighting level can be adjusted and its color can also be selected from four different colors:</p> <p><b>MENU</b> &gt; SWITCH SETTING &gt; PEAKING COLOR (Parameter: Red, Blue, Yellow, White) &gt; SWITCH SETTING &gt; PEAKING LEVEL: (Parameter: -7 - 0 - +7)</p>

# 4. Understanding advanced features

## 4-3. Understanding Dual memory card slots

Various recording modes are available with dual SD memory card slots.



### Using the Two-slot features

1. Set MENU > SYSTEM MODE > OUTPUT BITS: 4:2:2 (8bit).
2. MENU > RECORDING SETUP > 2SLOT FUNC: OFF / RELAY / SIMUL / BACKGROUND

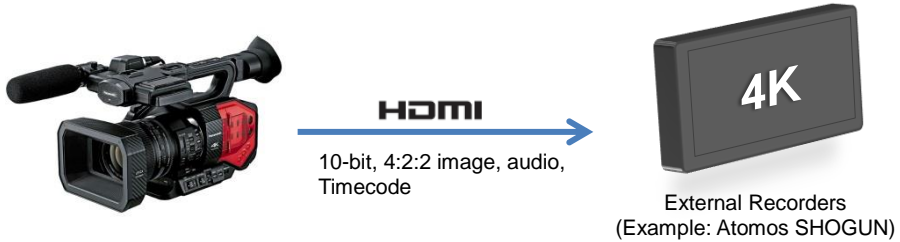
NOTE: the two-slot features do not work under the following conditions.

- Variable frame rate record mode (VFR) is ON.
- Interval recording mode is ON.
- OUTPUT BITS setting is set "4:2:2(10bit)

# 4. Understanding advanced features

## 4-4. Recording 4:2:2 10-bit image with external 4K recorders

Excellent image quality 10-bit 4:2:2 sampled images can be output from the HDMI port. The following describes workflow know-how when using external recorders.



For information of qualified recorders, and test reports, visit at <http://pro-av.panasonic.net/en/products/ag-dvx200/index.html>

### How to connect and record

1. Connect an AG-DVX200 and a supported recorder with an HDMI2.0 cable.
2. Set menu items below on the AG-DVX200.
  - SYSTEM MODE > OUTPUT BITS: 4:2:2(10bit)
  - OUTPUT SETUP > OUTPUT SEL: HDMI
  - OUTPUT SETUP > SDI REMOTE: ON
  - OUTPUT SETUP > REMOTE REC LINK: OFF
  - OUTPUT SETUP > HDMI TC OUTPUT: ON
3. Assign the "AUTO REC" item to one of the assignable USER buttons. (see P.17)
4. The USER button can now be used as a REC/PAUSE button for the external recorder.

### Two control methods when using external recorders

REC/PAUSE operation of external recorders can be performed with the REC button on the AG-DVX200 when output sampling (OUTPUT BITS item) is set "4:2:2(8bit)", but it does not work when setting is "4:2:2(10bit)" because internal recording of this sampling mode is not supported.

However, external recorder remote control can be performed by using an assignable USER button for the REC function even in 4:2:2 (10bit) mode. See following table for menu settings example by sampling type (8bit/10bit).

Output sampling	4:2:2 (10bit)	4:2:2 (8bit)
OUTPUT SETUP > OUTPUT SEL	HDMI	HDMI
OUTPUT SETUP > SDI REMOTE	ON	ON
OUTPUT SETUP > REMOTE REC LINK	OFF	ON
OUTPUT SETUP > HDMI TC OUTPUT	ON	ON

# 4. Understanding advanced features

## 4-5. Synchronizing timecode for multi-cam operation

The AG-DVX200 is equipped with a timecode IN/OUT terminal (common use for IN and OUT). The following describes workflow know-how when using time code synchronization feature with two AG-DVX200 units.



### Preparation

1. Connect TC PRESET IN/OUT terminals on both master and slave units with a BNC cable.
2. Make sure that the settings of following menu items are the same for both units.

MENU > SYSTEM MODE > REC FORMAT  
MENU > SYSTEM MODE > REC MODE  
MENU > RECORDING SETUP > DF MODE (59.94Hz system mode only)

### Settings for master unit

3. Set MENU > RECORDING SETUP > TCG to "FREE RUN".
4. Set MENU > RECORDING SETUP > EXT TC LINK to "MASTER" (now timecode signal is output from the TC PRESET IN/OUT terminal).

### Settings for slave unit

5. Set MENU > RECORDING SETUP > EXT TC LINK to "SLAVE" (now the TC PRESET IN/OUT terminal switches to input mode, and TCG setting changes to FREE RUN automatically).
6. Press the RESET/TC SET button near the built-in LCD panel to synchronize timecode.

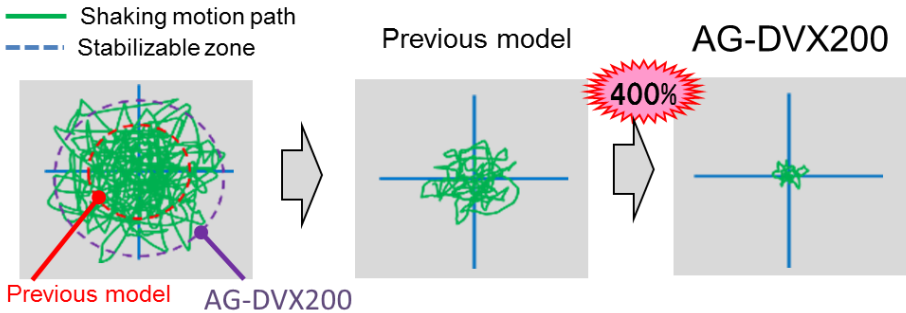




# 4. Understanding advanced features

## 4-6. Understanding user customizable image stabilizer

Much higher performance is required of image stabilizers for 4K/UHD cameras because even a small amount of shake can easily be seen when working in these resolutions. The AG-DVX200 is equipped with four times higher stabilization performance achieved through an expanded stabilization range. The stabilization characteristics can also be customized to meet professional requirements.



### Customizing image stabilization characteristic

1. MENU > SWITCH SETTING > CUSTOM O.I.S : ON
2. MENU > SWITCH SETTING > Set "BLUR AMPLITUDE" and "BLUR FREQ" as explained below.

### BLUR AMPLITUDE adjustment

- Factory default setting = 3 (adjustable range: 1 - - - 3 - - - 5)
- Choose smaller values when motion of camera work is not so large (suitable for steady shots).
- Choose larger values when recording while moving.
- When increasing this value, OIS can compensate small to large shake levels but is not suitable for steady shots.

### BLUR FREQUENCY adjustment

- Factory default setting = 2 (adjustable range: 1, 2, 3)
- 1: Image stabilizer actively responds from rapid camera shaking to slow shaking. This mode is suitable for steady shots.
  - 2: Image stabilizer actively responds for relatively rapid shaking.
  - 3: Image stabilizer effect weakens or strengthens dynamically. Effect level becomes stronger for rapid shaking, and becomes weaker for slow shaking making it suitable for scenes that frequently use panning.

# 4. Understanding advanced features

## 4-7. Understanding user customizable auto focus

The AG-DVX200 is equipped with customizable auto focus to meet professional requirements.

### Customizing image stabilization characteristic

1. MENU > SWITCH SETTING > CUSTOM AF : ON
2. MENU > SWITCH SETTING > Set "AF SPEED" and "AF SENSITIVITY" as explained below.

### AF SPEED (focusing speed) adjustment

- Factory default setting = 0 (adjustable range: -5 - - 0 - - - +5)
- Focusing speed increase as the value increases.

Note: When increasing the value of AF SPEED control, the motor operation sound becomes louder and may be recorded.

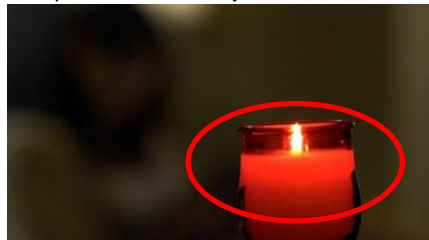
### AF SENSITIVITY (focusing response) adjustment

- Factory default setting = 5 (adjustable range: 0 - - - 5 - - - 10)
- Focusing response becomes faster as the value increases. This makes it suitable to follow fast moving objects.

# 4. Understanding advanced features

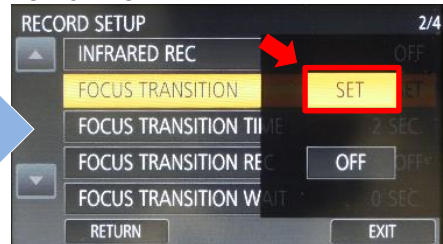
## 4-8. Understanding Focus transition feature

A new focus transition feature allows users to easily adopt impressive camera work with racking focus (changing focus of the lens during a shot). This is even available in 4K/UHD mode, where this would normally be a challenging focus operation if performed manually.

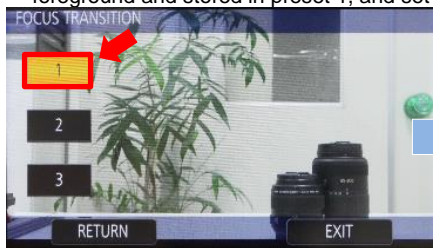


How to operate focus transition

1. Set focus mode to MANUAL.
2. Assign "FOCUS TRANS" to one of the USER assignable buttons (MENU > USER SWITCH).
3. MENU > RECORDING SET UP > FOCUS TRANSITION > SET



4. Choose a preset number and adjust the focus ring. In following figures, focus is set to foreground and stored in preset 1, and set focus to the plant and stored in preset 2.



5. Press the USER button ("FOCUS TRANS" is assigned) and press preset number buttons (1 to 3) to recall the presets.



Focus transition feature will be canceled with following operations.

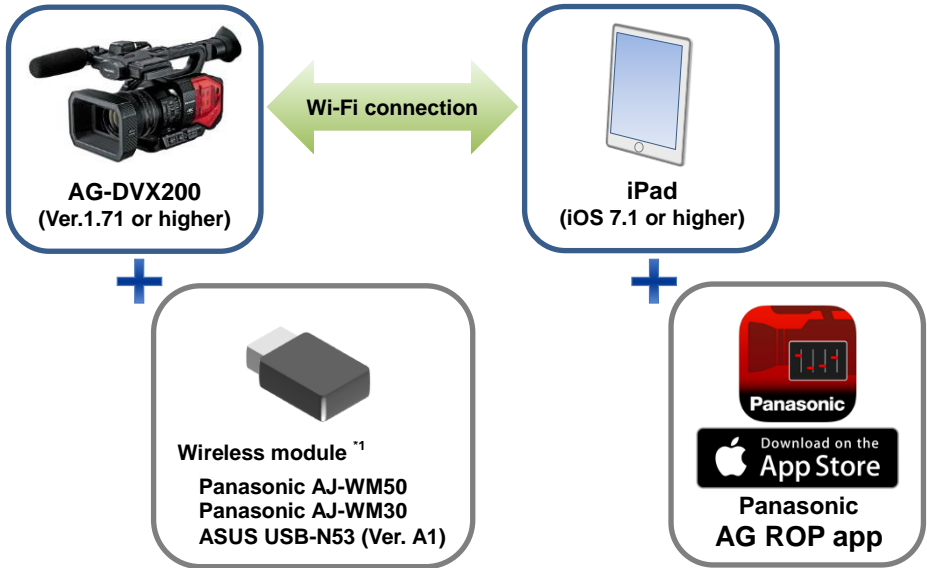
- Power OFF
- Switched to thumbnail mode
- Zooming

# 4. Understanding advanced features

## 4-9. Understanding Remote operation via AG ROP application for iPad

Remote control via Wi-Fi network is available by using an application for iPad.

### Necessary equipment



\*1 Contact your AG-DVX200 dealer for Panasonic AJ-WM50 and AJ-WM30 wireless adaptor. A wireless adaptor ASUS USB-N53 Ver.A1 is also recommended as a qualified adaptor. (Contact ASUS' dealer for inquiry)

### Setting up equipment (overview)

1. Make sure that the version of an AG-DVX200 is 1.71 or higher. (MENU > MAINTENANCE > )  
\* Download the latest firmware at [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)
2. Install the Panasonic AG ROP app from App Store to the iPad.
3. Connect the Wi-Fi adaptor to an USB3.0 HOST port of the AG-DVX200.
4. Set Wi-Fi related settings on the AG-DVX200 and the iPad.
5. Connect the iPad to the AG-DVX200.
6. Open Panasonic AG ROP.

# 4. Understanding advanced features

## Setup example: Operate an AG-DVX200 from an iPad directly connected.

### Settings on AG-DVX200



1. Make sure that the version of an AG-DVX200 is 1.71 or higher. (MENU > MAINTENANCE >)  
\* Download the latest firmware at [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)
2. Set following USB related menu items to enable the USB3.0 port for AG ROP connection.

MENU > OTHER FUNCTIONS > USB MODE SELECT > **HOST**  
MENU > OTHER FUNCTIONS > USB MODE > **ON**




3. Set network related menu items (MENU > NETWORK SETUP > ) below.

Menu	Value
<b>WIRELESS SETUP</b>	Choose " <b>DIRECT</b> " and set followings SSID: Enter SSID name (Default: DVX200) BAND: Choose " <b>2.4GHZ</b> " or " <b>5GHZ</b> " depends on Wi-Fi adaptor type. CHANNEL(2.4GH): Choose " <b>AUTO</b> " CHANNEL(5GH): Choose " <b>AUTO</b> " Password: Enter password (Default: 01234567890123456789abcdef)
<b>Wireless LAN</b>	IP address (Default: 192.168.0.1)
<b>setup</b>	Subnet mask (Default: 255.255.255.0)
	Gateway (Default: 192.168.0.254)
	DHCP Choose " <b>SERVER</b> "

### Settings on iPad

1. Install the Panasonic AG ROP app from App Store.
2. Open "Settings  > Wi-Fi > ", and choose an SSID of the AG-DVX200 (example: DVX200) to be connected.
3. Enter connection password (factory default: 01234567890123456789abcdef) to connect to the AG-DVX200 via Wi-Fi network.
4. Open the AG ROP app and confirm that the connection status on the AG-DVX200 is shown as  (ready to be controlled from the app).
5. Control the AG-DVX200 using the app.

### Connection status on AG-DVX200

	No connection
	Connected to a wireless LAN device (iPad, router etc.)
	Connected to a wireless LAN device and under controlled from AG ROP app

\* App Store is a service mark of Apple Inc.

\* Apple, the Apple logo, and iPad are trademarks of Apple Inc., registered in the U.S. and other countries.

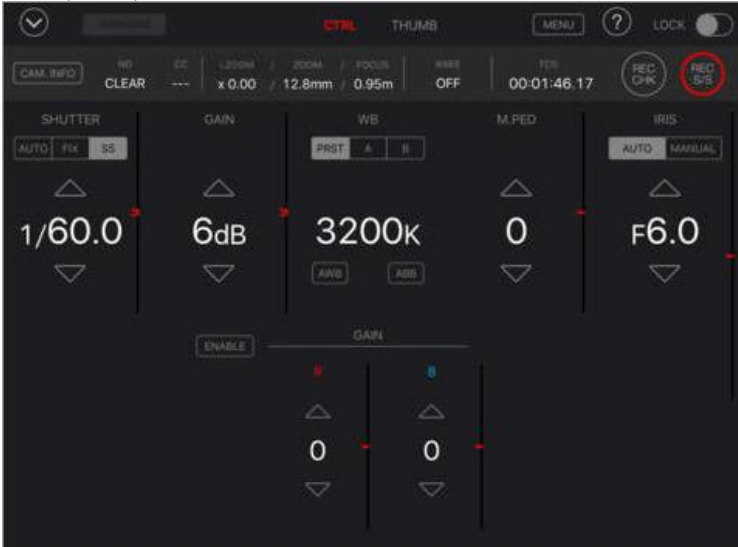
# 4. Understanding advanced features



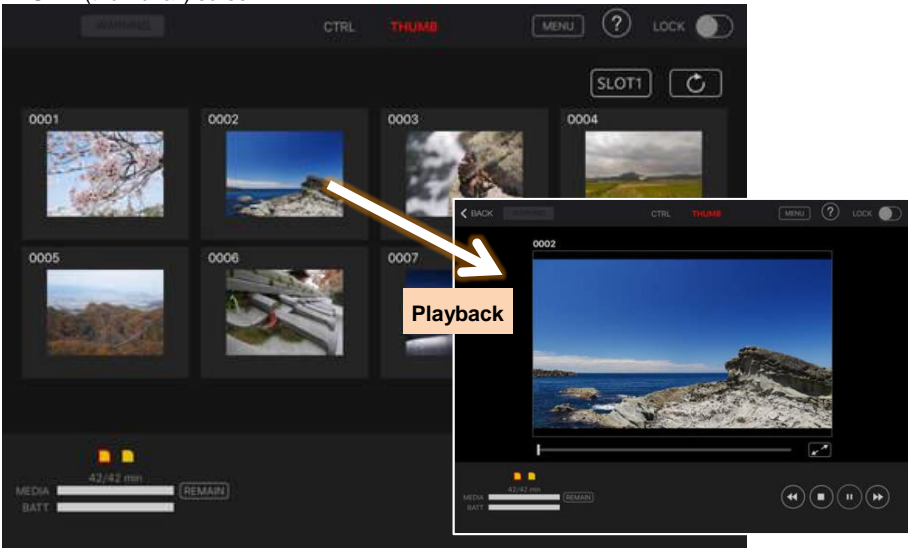
## Key features of AG ROP app

The AG ROP app consists of two main screens, a “CTRL” screen for camera control and a “THUMB” screen for clip browse and review.

CTRL (control) screen



THUMB (thumbnail) screen



\* Clips recorded at 8Mbps can only be displayed and viewed.

# 5. Understanding scene file operations



# 5. Understanding scene file operations

The following six different scene presets come standard with the camera, and can be user customized if required.

## 5-1. SCENE FILE presets

SCENE #1	Basic setting
SCENE #2	Suitable for recording where the characteristics of fluorescent lamps are taken into consideration (example: shooting indoors). Most of the parameters are equal to SCENE#1 but the MATRIX is adjusted for fluorescent lighting. This is not particularly necessary under the fluorescent lighting close to natural light color temperature. But it is suitable for recording conditions where the color reproduction is poor due to blue-intense fluorescent lamps.
SCENE #3	Suitable for recording with richer color level and sharper contrast. The picture will be showy with vivid colors and give a bright impression.
SCENE #4	Suitable for recording where the gradation is expanded in dark parts of the image (e.g. shooting a sunset scene). This is effective if being used when dark parts are difficult to see or both bright and dark scenes need to be seen in detail when shooting at sunset, in a theater or at a wedding etc.
SCENE #5	Suitable for movie-like recording where importance is placed on contrast. This has a Gamma curve that makes a movie-like picture using a video camera.
SCENE #6	Suitable for movie-like recording where importance is placed on the Dynamic Range. This Gamma gives priority to the Dynamic (D) Range and maintains the gradation that ranges evenly from low to high level. If the post-production editing or a kinescope is planned, this can be selected because recording in this mode will make such post-processing easier and smoother. Also, it will create a unique atmosphere which can sometimes be used as an effect.



# 5. Understanding scene file operations

## 5-2. Factory default settings

Item	Scn1	Scn2	Scn3	Scn4	Scn5	Scn6
MASTER DETAIL	0	0	+6	0	-8	-8
DETAIL CORING	1	1	1	1	1	1
SKIN TONEDetail	OFF	OFF	OFF	OFF	OFF	OFF
V DETAIL LEVEL	0	0	0	0	0	0
KNEE APE LEVEL	2	2	3	2	2	2
CHROMA LEVEL	0	0	+4	0	-10	-10
CHROMA PHASE	0	0	+5	0	0	0
MATRIX	NORM1	FLUO	NORM2	NORM1	CINELIKE	CINELIKE
MASTER PED	0	0	0	0	0	0
GAMMA MODE	HD	HD	HD	HD	C.LIKE V	C.LIKE D
BLACK GAMMA	0	0	-3	+6	0	0
KNEEMASTER POINT	93.0	93.0	93.0	93.0	93.0	93.0
KNEEMASTER SLOPE	85	85	85	85	85	85
DRS EFFECT	1	1	1	1	1	1

\* Setting values of each scene file can be overwritten as you like and saved.

A custom scene file, called "STILL-LIKE" that simulates LUMIX GH4's tone is available at the following website. [http://pro-av.panasonic.net/en/products/ag-dvx200/custom\\_scene.html](http://pro-av.panasonic.net/en/products/ag-dvx200/custom_scene.html)  
 Following table shows parameters of the custom scene file.

Item	Scn1	Scn2	Scn3	Scn4	Scn5	Scn6
MASTER DETAIL	0	0	+6	0	-8	-8
DETAIL CORING	1	1	1	1	1	1
SKIN TONEDetail	OFF	OFF	OFF	OFF	OFF	OFF
V DETAIL LEVEL	0	0	0	0	0	0
KNEE APE LEVEL	2	2	3	2	2	2
CHROMA LEVEL	0	0	+4	0	-10	-10
CHROMA PHASE	0	0	+5	0	0	0
MATRIX	NORM1	FLUO	NORM2	NORM1	CINELIKE	CINELIKE
MASTER PED	0	0	0	0	0	0
GAMMA MODE	HD	HD	HD	HD	C.LIKE V	C.LIKE D
BLACK GAMMA	0	0	-3	+6	0	0
KNEEMASTER POINT	93.0	93.0	93.0	93.0	93.0	93.0
KNEEMASTER SLOPE	85	85	85	85	85	85
DRS EFFECT	1	1	1	1	1	1

## 5. Understanding scene file operations

### 5-3. Expressing the texture of objects (detail enhancement)

When expressing the outline or surface texture of an object, faint reflection of light may be intensified or, to the contrary, the picture may look blurred. This is a phenomenon caused by the strength / weakness of Detail signal to intensify the video signal for the object's outline. Adjustment of Detail signal can make the object's luster or texture look more natural.

MASTER DETAIL: +31 (UHD 2160/59.94p)



MASTER DETAIL: -31 (UHD 2160/59.94p)



# 5. Understanding scene file operations

## 5-4. Basic settings for Detail

MENU > SCENE FILE > (Factory default settings underlined)

**[MASTER DETAIL]** -31 - - - 0 - - - +31

Adjusts the level of overall Detail effect.

**[DETAIL CORING]** 0 - - - +1 - - - +60

Sets the level of signal (including noise) that suppresses the Detail effect.

**[SKIN TONE DTL]** ON / OFF

Sets the level of detail effect for a certain color (skin) tone.

**[V DETAIL LEVEL]** -7 - - - 0 - - - +7

Sets the intensity of Detail level in the vertical direction.

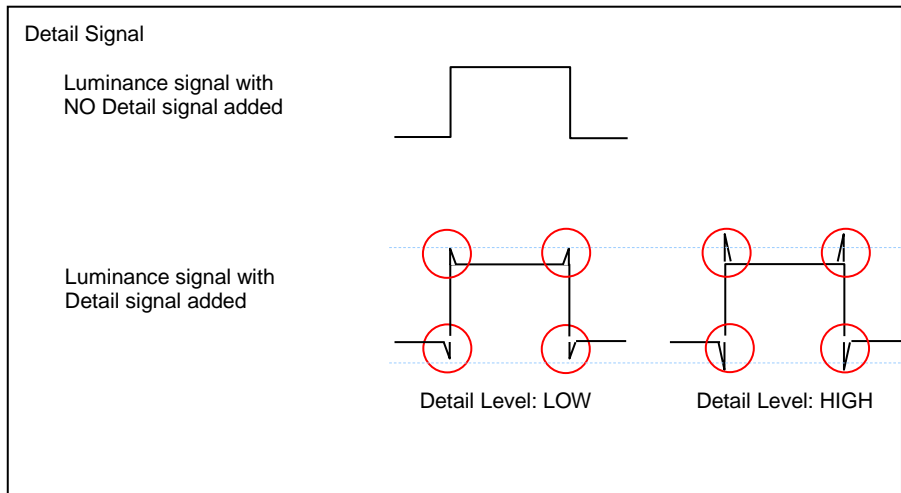
**[KNEE APE LEVEL]** 0 - - - 2 - - - 5

Sets the Detail level of high-luminance areas (very bright areas).

### Detail control

This is an outline signal which is added to a video signal.

If the Detail level is increased, the edges of video signal will be intensified and outlines in the picture will look sharper. If the Detail level is decreased, the edges of video signal will be weakened and the picture will look softer with its outline enhancement suppressed.



# 5. Understanding scene file operations

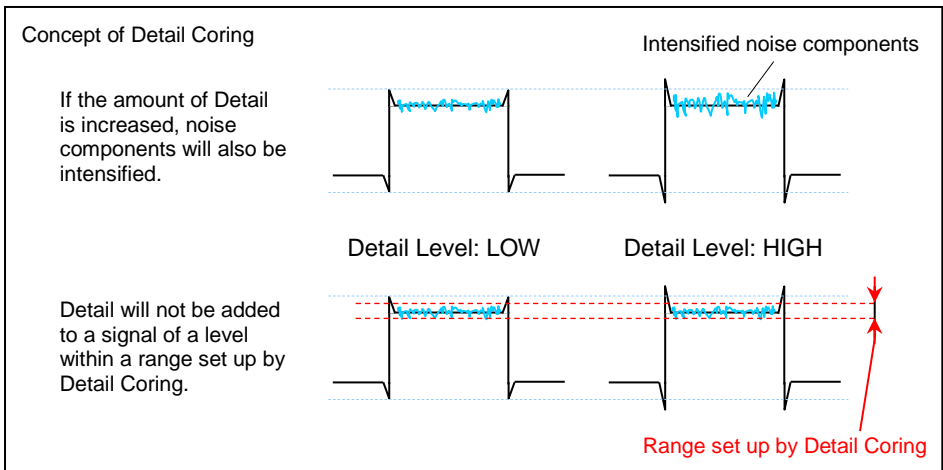
## Detail coring control

Outline compensation can be performed by adjusting the Detail, and enhanced outlines enable clear representation of images. But at the same time it may make the picture look coarse. This occurs because added Detail will also work on low-level signals which includes noise.

Detail coring function can adjust the range of added Detail signal but also helps to reduce the noise introduced by the Detail circuits.

Noise is a low-level signal. So, when Detail coring is set to a higher level than noise signals, the Detail signal will work only on higher-brightness signals, and not on the noise.

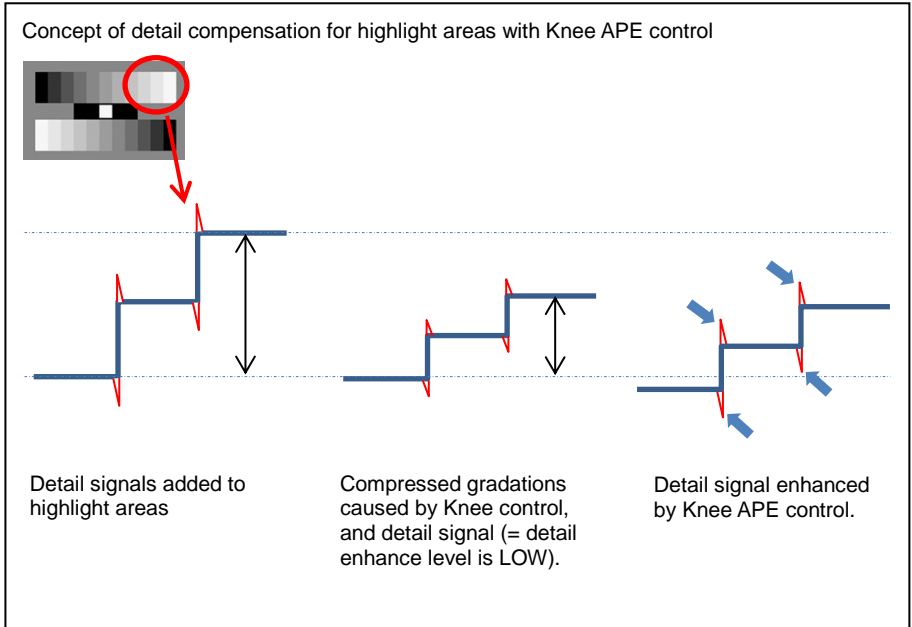
By using this control, the outline of an object can be enhanced and its texture will look the same while the effects of increased image coarseness are suppressed.



# 5. Understanding scene file operations

## Knee APE level control

When compressing highlight portions with KNEE control to avoid overexposed image (blown-out highlights), detail signal will also be compressed and it may cause softening in highlight areas. This can be compensated by using KNEE APE LEVEL control.



MENU > SCENE FILE > (Factory default settings underlined)

[KNEE APE LEVEL] 0 --- 2 --- 5

Sets enhancement level of detail signal for highlight areas

# 5. Understanding scene file operations

## 5-5. Expressing the gradation of a picture (Knee, Gamma)

Due to bright sunny weather or lighting, "blown-out highlights" can sometimes occur, where bright areas look completely white. This is a phenomenon caused by the luminance signals that are out of the camera's Dynamic Range (processing range). In order to put such high-brightness input signals within the Dynamic Range, Knee function can be used to compress the gradation.

MENU > SCENE FILE > (Factory default settings underlined)

**[KNEE MODE] AUTO / MANUAL / OFF**

AUTO: Adjusts master point and slope automatically.

MANUAL: Knee master point and slope can be adjusted manually.

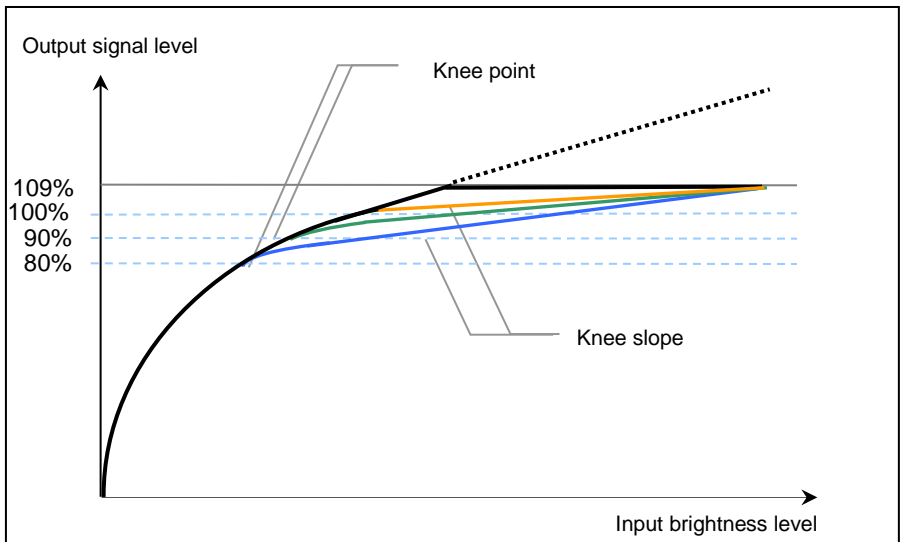
OFF: Do not use Knee controls.

**[KNEE MASTER POINT] 80.0 --- 93.0 --- 107.0**

Sets the position of Knee Point. (\* Enabled when KNEE MODE is MANUAL)

**[KNEE MASTER SLOPE] 0 --- 85 --- 99**

Sets the slope of Knee. (\* Enabled when KNEE MODE is MANUAL)



This is for explanation purposes only and may be different from actual measurements.



# 5. Understanding scene file operations

KNEE MASTER POINT: 107%

Highlight areas tend to be overexposed (no gradations visible) when value is increased.



KNEE MASTER POINT: 93.0%



KNEE MASTER POINT: 80.0%

Gradations in the highlight areas become visible when value is decreased.



# 5. Understanding scene file operations

## Gamma settings

There are cases where the color and contrast, which look natural to the eye, are not fully reproduced in the captured image. An effective way to improve the gradation of the output signal is to select a suitable Gamma curve according to the scene conditions. The AG-DVX200 offers seven types of Gamma curves.

**HD:**

This is a video Gamma characteristic for HD (High Definition).

This Gamma complies with the standards defined by ARIB, EBU, SMPTE, etc. Use this for the purpose of normal HD shooting.

**SD:**

Gain is increased for dark areas more than HD Gamma.

This Gamma curve can be used for shooting in SD mode, or for HD shooting that needs the same Gamma as used in SD shooting.

**FILMLIKE 1:**

Compared with HD Gamma, this has the characteristics by which the gradation of the highlights can be reproduced better. Using this Gamma curve which gently slopes for the low-brightness area makes the picture look calm. Contrast becomes sharper and the gradation expression of the middle- and high-brightness areas (face, etc.) is extended.

**FILMLIKE 2:**

Compared with FILM LIKE 1, this has the characteristics by which the gradation of the highlights can be reproduced better.

**FILMLIKE 3:**

Compared with FILM LIKE 2, this has the characteristics by which the gradation of the highlights can be reproduced better.

**CINE-LIKE V:**

Video-use cine Gamma characteristics.

This is a Gamma curve to make a movie-like picture using a video camera. It creates a picture where more importance is placed on contrast than in normal video mode recording.

**CINE-LIKE D:**

Film-use cine Gamma characteristics.

This Gamma gives priority to the Dynamic Range and maintains the gradation that ranges evenly from low to high level. It creates a unique look which is sometimes used as an artistic effect.



# 5. Understanding scene file operations

HD



SD



FILMLIKE1



FILMLIKE2



FILMLIKE3



CINE-LIKE V



CINE LIKE D



## 5. Understanding scene file operations

### Image comparison with different Gamma curves 1/4

HD



SD





## 5. Understanding scene file operations

### Image comparison with different Gamma curves 2/4

**FILMLIKE1**



**FILMLIKE2**



## 5. Understanding scene file operations

### Image comparison with different Gamma curves 3/4

#### FILMLIKE3



#### CINE-LIKE V





## 5. Understanding scene file operations

Image comparison with different Gamma curves 4/4

CINE-LIKE D



# 5. Understanding scene file operations

## Black gamma and Black gamma range controls

Dark parts of the image (approx. 20% to 40% in video level) can be lifted or suppressed with these controls.

MENU > SCENE FILE > (Factory default settings underlined)

---

**[BLACK GAMMA]** -8 - - - 0 - - - +8

Sets gamma characteristic for dark part of the image.

---

**[BLACK GAMMA RANGE]** 1 , 2 , 3

Sets level to be lifted or suppressed.

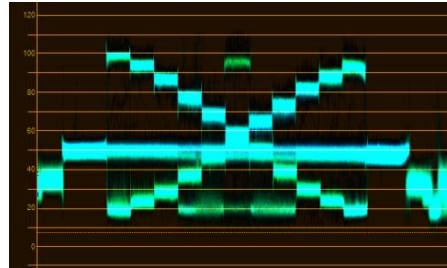
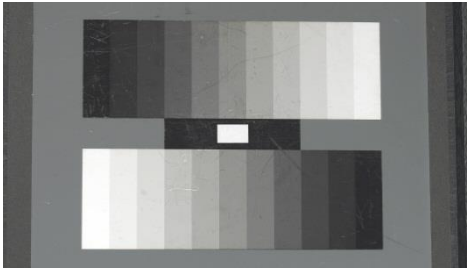
1 : Adjust approx. 20% in video level.

2 : Adjust approx. 30% in video level.

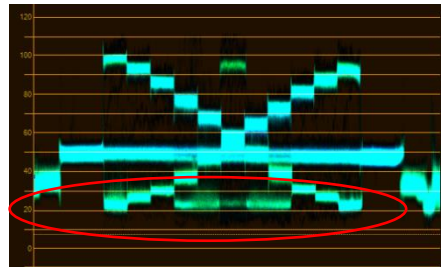
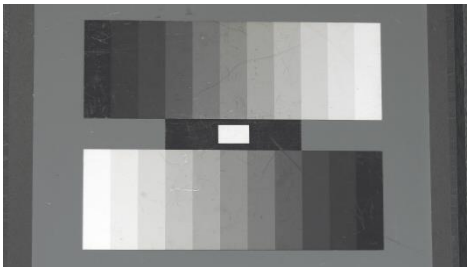
3 : Adjust approx. 40% in video level.

---

BLACK GAMMA = +8, BLACK GAMMA RANGE= 1



BLACK GAMMA = +8, BLACK GAMMA RANGE= 2



Dark area is lifted.

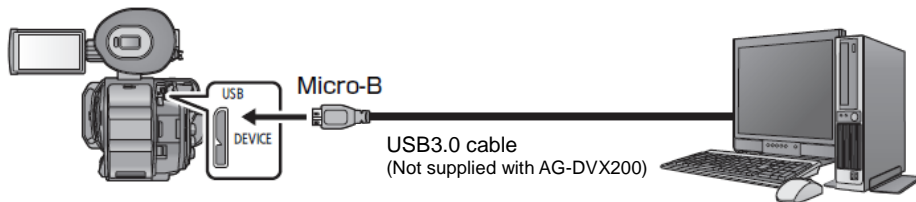
# 6. After recording



# 6. After recording

## 6-1. Connecting to PC/Mac

Recorded clips can be transferred rapidly from the AG-DVX200 to PC/Mac over USB3.0 port.



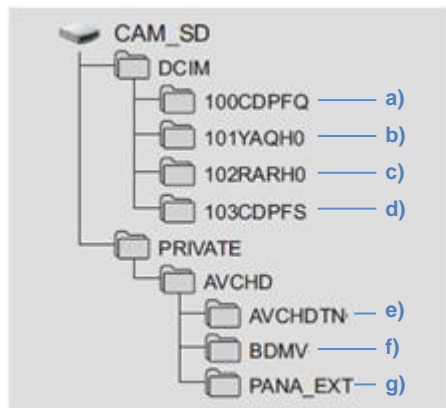
How to connect

1. Turn ON the power of the AG-DVX200.
2. Press "THUMBNAIL" button to switch to Playback mode.
3. Set MENU > OTHER FUNCTIONS > USB MODE SELECT: DEVICE
4. Turn OFF the power of the AG-DVX200 and connect the AG-DVX200 and the PC/Mac with a USB3.0 cable.
5. Turn ON the power and tap "PC" on the touch screen to switch to the PC connection mode.

\* The built-in LCD panel will turn OFF for 5 seconds straight after connection is established when battery powered (the LCD panel works again when tapped).

\* Data cannot be written from PC/Mac to the mounted SD card.

## 6-2. File structure of SD memory card



Files stored:

- a) Still pictures in JPEG format. Up to 999 files can be stored.
- b) Video clips in MOV format.
- c) Video clips in MP4 format.
- d) Still pictures created from videos with the AG-DVX200.
- e) Thumbnails (AVCHD clips)
- f) Video clips in AVCHD (MTS) format.
- g) For file management

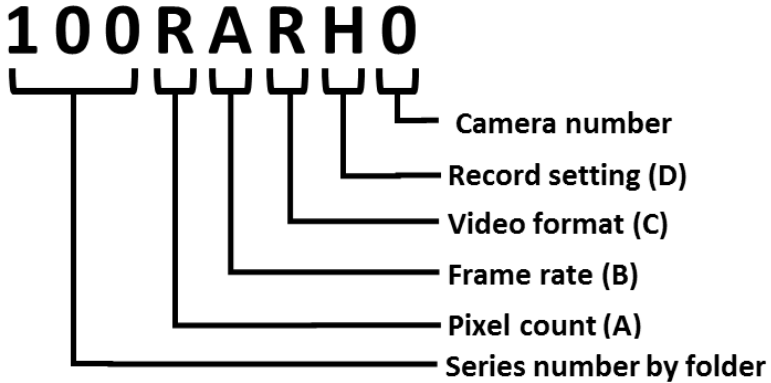
\* Several kind of different files are stored under PRIVATE folder for AVCHD clips. Always copy the PRIVATE folder as a file set. Copying \*.MTS files only may cause clip to be unplayable.



# 6. After recording

## 6-3. Folder name structure for MOV/MP4 folders

Following information determines the folder names that stores clips in MOV/MP4 formats.



### Example: When a folder is named as "100RARH0"

The folder contains following video clips.

- Pixel count: "3840x2160"
- Frame rate: "59.94fps"
- Record format: MP4 LPCM progressive

(A) Pixel count	(B) Framerate (fps)	(C) Video format	(D) Record setting
Y: 1920 x 1080 R: 3840 x 2160 Q: 4096 x 2160	A: 59.94 B: 50 C: 29.97 D: 25 E: 24.00 F: 23.98	J: Interlace (MOV, LPCM) K: Interlace (MP4, LPCM) Q: Progressive (MOV, LPCM) R: Progressive (MP4, LPCM) X: Fast scan (MP4, LPCM) Y: Fast scan (MOV, LPCM)	D: Sub recording at 50Mbps E: Sub recording at 8Mbps P: Main recording H: Other than above

### What is camera number?

This is to allow users to identify the camera by looking at recorded folders. Any number from 0 to 16 can be set with the following menu item.

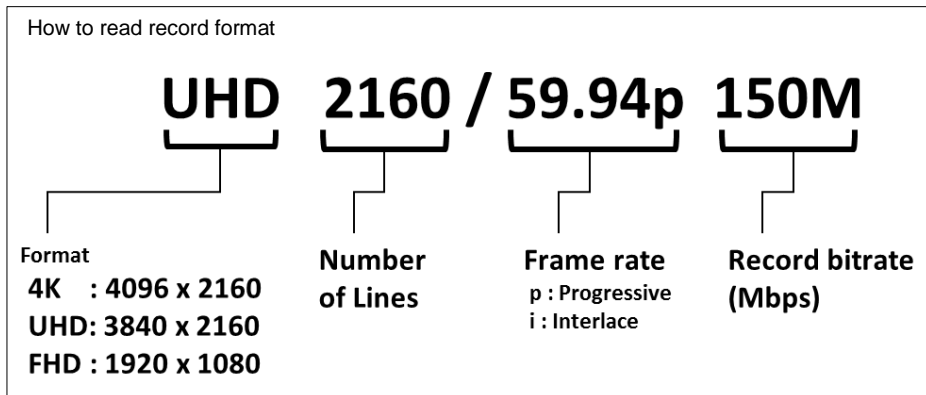
MENU > SYSTEM MODE > CAMERA NUMBER SET: 0 to 16

# 7. Appendix



# 7. Appendix

## 7-1. Recording time in each video setting



### MOV, MP4 FORMATS

Record format	System frequency	Memory card capacity	
		16GB	64GB
4K 2160/24.00p 100M (incl. Fastscan mode)	59.94Hz/50.00Hz	20m	1h 20m
UHD 2160/59.94p 150M	59.94Hz	----	55m
UHD 2160/29.97p 100M (incl. Fastscan mode)		20m	1h 20m
UHD 2160/23.98p 100M (incl. Fastscan mode)		20m	1h 20m
FHD 1080/59.94p All-I 200M		10m	40m
FHD 1080/59.94p 100M		20m	1h 20m
FHD 1080/59.94p 50M		40m	2h 40m
FHD 1080/29.97p All-I 200M		10m	40m
FHD 1080/23.98p All-I 200M		10m	40m
FHD 1080/29.97p 50M		40m	2h 40m
FHD 1080/23.98p 50M		40m	2h 40m
FHD 1080/59.94i 50M		40m	2h 40m
UHD 2160/50.00p 150M		50.00Hz	----
UHD 2160/25.00p 100M (incl. Fastscan mode)	20m		1h 20m
FHD 1080/50.00p All-I 200M	10m		40m
FHD 1080/50.00p 100M	20m		1h 20m
FHD 1080/50.00p 50M	40m		2h 40m
FHD 1080/25.00p All-I 200M	10m		40m
FHD 1080/25.00p 50M	40m		2h 40m
FHD 1080/50.00i 50M	40m		2h 40m

# 7. Appendix

## 7-1. Recording time in each video setting (continued)

### AVCHD

Record format	System frequency	Memory card capacity	
		16GB	64GB
PS 1080/59.94p	59.94Hz	1h 20m	5h 20m
PH 1080/59.94i		1h 30m	6h
PH 1080/23.98p		1h 30m	6h
HA 1080/59.94i		2h	8h 30m
HE 1080/59.94i		6h 40m	27h 30m
PM 720/59.94p		4h 15m	17h 10m
SA 480/59.94i		4h	16h 30m
PS 1080/50.00p	50.00Hz	1h 20m	5h 20m
PH 1080/50.00i		1h 30m	6h
HA 1080/50.00i		2h	8h 30m
HE 1080/50.00i		6h 40m	27h 30m
PM 720/50.00p		4h 15m	17h 10m
SA 576/50.00i		4h	16h 30m

# 7. Appendix

## 7-2. Output signal formats

1. System frequency: 59.94Hz, output bit depth: 4:2:2(8bit)				
REC format	Resolution setting	HDMI OUT	SDI OUT	VIDEO OUT
4K 24.00p	SYSTEM	2160/24.00p	1080/24.00PsF	--
	1080p	1080/24.00p	1080/24.00PsF	--
UHD 59.94p	SYSTEM	2160/59.94p <sup>*1</sup>	1080/59.94p	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
UHD 29.97p	SYSTEM	2160/29.97p	1080/29.97PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
UHD 23.98p	SYSTEM	2160/23.98p	1080/23.98PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
FHD 59.94p PS 59.94p	SYSTEM	1080/59.94p	1080/59.94p	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
FHD 59.94i PH 59.94i HA 59.94i HE 59.94i	SYSTEM	1080/59.94i	1080/59.94i	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
FHD 29.97p	SYSTEM	1080/29.97p	1080/29.97PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
FHD 23.98p PH 23.98p	SYSTEM	1080/23.98p	1080/23.98PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
PM 720p	SYSTEM	720/59.94p	720/59.94p	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
	DOWN CONVERT	480/59.94p	480/59.94i	480/59.94i
SA 480i	SYSTEM	480/59.94p	480/59.94i	480/59.94i

\*1. Output format is "4:2:0(8bit),2160/59.94p", and becomes "4:2:2 8bit,1080/59.94p" while in record mode.

# 7. Appendix

## 7-2. Output signal formats (continued)

2. System frequency: 59.94Hz, output bit depth: 4:2:2(10bit)				
format	Resolution setting	HDMI OUT	SDI OUT	VIDEO OUT
4K 24.00p	SYSTEM	2160/24.00p	1080/24.00PsF	--
	1080p	1080/24.00p	1080/24.00PsF	--
UHD 29.97p	SYSTEM	2160/29.97p	1080/29.97PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
UHD 23.98p	SYSTEM	2160/23.98p	1080/23.98PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
FHD 59.94p	SYSTEM	1080/59.94p	1080/59.94p	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
FHD 59.94i	SYSTEM	1080/59.94i	1080/59.94i	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
FHD 29.97p	SYSTEM	1080/29.97p	1080/29.97PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--
FHD 23.98p	SYSTEM	1080/23.98p	1080/23.98PsF	--
	1080p	1080/59.94p	1080/59.94p	--
	1080i	1080/59.94i	1080/59.94i	--

# 7. Appendix

## 7-2. Output signal formats (continued)

3. System frequency: 50.00Hz, output bit depth: 4:2:2(8bit)				
REC format	Resolution setting	HDMI OUT	SDI OUT	VIDEO OUT
4K 24.00p	SYSTEM	2160/24.00p	1080/24.00PsF	--
	1080p	1080/24.00p	1080/24.00PsF	--
UHD 50.00p	SYSTEM	2160/50.00p <sup>*2</sup>	1080/50.00p	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
UHD 25.00p	SYSTEM	2160/25.00p	1080/25.00PsF	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
FHD 50.00p PS 50.00p	SYSTEM	1080/50.00p	1080/50.00p	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
FHD 50.00i PH 50.00i HA 50.00i HE 50.00i	SYSTEM	1080/50.00i	1080/50.00i	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
FHD 25.00p	SYSTEM	1080/25.00p	1080/25.00PsF	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
PM 25.00p	SYSTEM	720/50.00p	720/50.00p	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
	DOWN CONVERT	576/50.00p	576/50.00i	576/50.00i
SA 576i	SYSTEM	576/50.00p	576/50.00i	576/50.00i

\*2. Output format is "4:2:0(8bit),2160/50.00p", and becomes "4:2:2 8bit,1080/50.00p" while in record mode.

# 7. Appendix

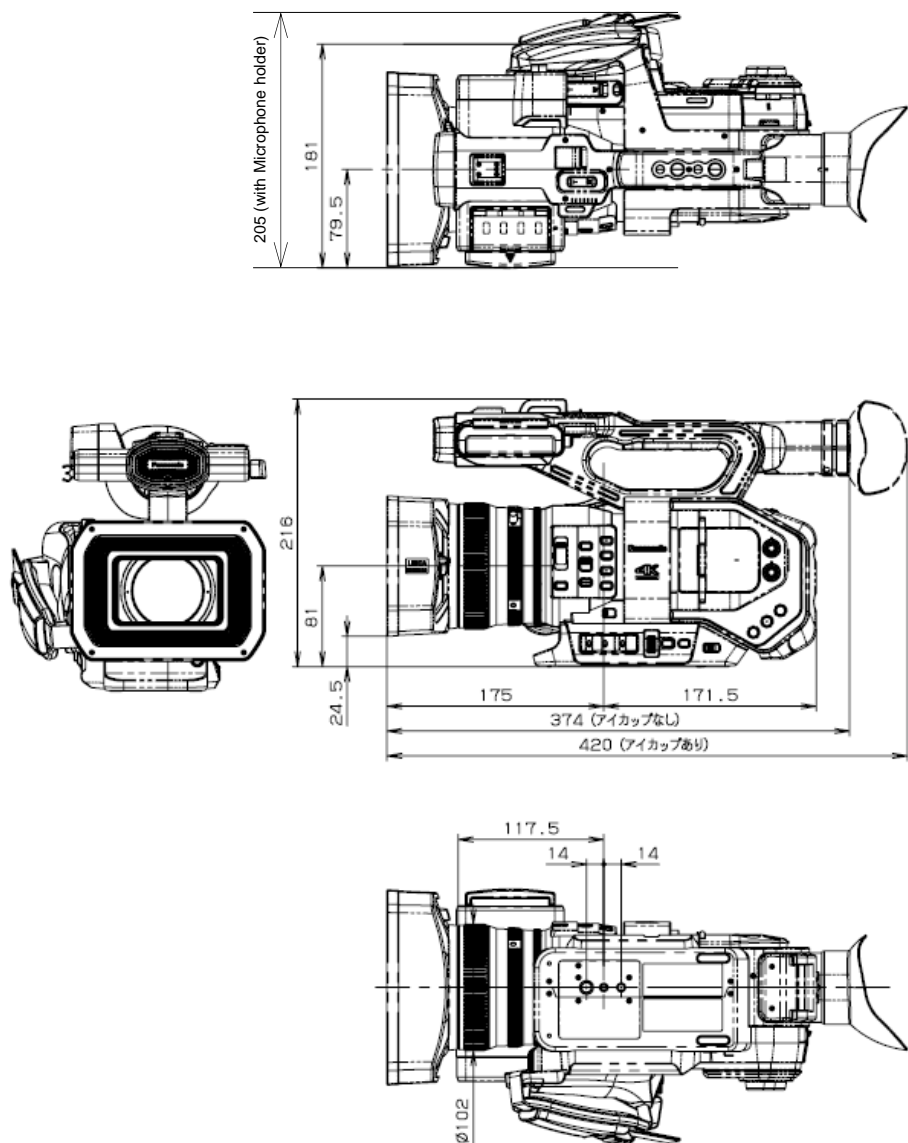
## 7-2. Output signal formats (continued)

4. System frequency: 50.00Hz, output bit depth: 4:2:2(10bit)				
Format	Resolution setting	HDMI OUT	SDI OUT	VIDEO OUT
4K 24.00p	SYSTEM	2160/24.00p	1080/24.00PsF	--
	1080p	1080/24.00p	1080/24.00PsF	--
UHD 25.00p	SYSTEM	2160/25.00p	1080/25.00PsF	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
FHD 50.00p	SYSTEM	1080/50.00p	1080/50.00p	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
FHD 50.00i	SYSTEM	1080/50.00i	1080/50.00i	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--
FHD 25.00p	SYSTEM	1080/25.00p	1080/25.00PsF	--
	1080p	1080/50.00p	1080/50.00p	--
	1080i	1080/50.00i	1080/50.00i	--



# 7. Appendix

## 7-3. Dimensions (mm)



# 7. Appendix

## 7-4. Accessories



\* Part number and design are subject to change without notice.

# 7. Appendix

## 7-5. Revision history

Issued	Revision history	Document ver.
Dec. 2015	First edition issued (contents available with firmware v1.25)	v1.00E
Feb. 2016	Following contents are added - Introduction of AG ROP application for Apple iPad - Details of NETWORK settings	V2.00E
Feb. 2016	Some minor changes have been made in FOCUS ASSIST function etc.	V2.01E
Mar. 2016	Amended an error of factory default value description of the SKIN TONE DTL setting (page-47).  Incorrect: ON , Correct: OFF	V2.02E
June 2016	Added new features, functions available since firmware v1.71.	V3.00E
Sep. 2016	Added new features, functions available since firmware v1.81.	V3.01E

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